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Original Communications.

THE TREATMENT OF EPIDIDYMITIS.

BY H. M. CHRISTIAN, M.D.,

Surgeon in Charge of the Genito-urinary Dispensary, University of Pennsylvania; Adjunct Professor Genito-urinary Diseases, Philadelphia Polyclinic.

Of all the well known complications of gonorrhea the one most dreaded by all patients is epididymitis. This apprehension is of twofold origin, arising not only from a natural dread of the pain attendant upon the condition, but still further by reason of the fact that it is the one complication that is liable to confine the patient to his bed, provoke unpleasant comments from a cruel world, and gravely threaten domestic peace and happiness.

It is the fear of exposure, I take it, that is the potent factor in inducing our patients suffering with epididymitis to exert their strongest efforts to remain on their feet all through the attack, notwithstanding the extra suffering incurred by such conduct. Of course, where the patient is willing and able to go to bed, that is undoubtedly the proper place for him. Again, the inflammation of the epididymis in some cases is of such a severe character, and accompanied with so much pain, that the patient has no option in

the matter, but is taken at once off his feet and confined to his bed.

Under such circumstances as these the writer has found the following simple plan of treatment the most efficacious:

The bowels are opened freely every day by a saline laxative given early in the morning. At the beginning of the attack the application of one Swedish leech over the cord on the affected side will be found to afford great relief. I have found that the continuous application of moist heat for forty-eight hours has contributed more to the patient's comfort than any other method of local treatment. This may be applied in the form of a hot-water bag constantly kept over the testicle, or cloths wrung out of hot water may be used; or, what is most excellent, the testicle may be entirely enveloped in an old-fashioned hot flaxseed poultice.

After two or three days' rest in bed with a treatment such as this, the patient is ready for a further course of treatment to be described later on. When we take into consideration the large number of patients with this affection met with in private practice who for various reasons are unwilling or unable to go to bed, and in addition to these the patients in dispensary practice who through stern necessity are compelled to keep on their feet, it will readily be seen that the majority of cases of epididymitis encountered are practically walking patients, and that a course of treatment such as that just described is totally inoperative under such conditions. It becomes, therefore, quite a problem for the attending surgeon to know how best to give relief under such circumstances.

The time-honored remedy consisting of the use of a suspensory bandage, together with the application to the testicle of a lotion containing lead-water, laudanum, and aconite, has always appeared to me to be a most unsatisfactory method of treatment, giving very little, if any, relief to the patient. A far superior plan consists in the application to the testicle of cotton and oiled silk, the whole dressing to be covered by a laced suspensory bandage, such a dressing as is described in White and Martin's work on Genito-Urinary Diseases (*vide* page 180). The writer has been using such a dressing for the past two or three years, adding to it the application to the testicle of an ointment made up of ichthyol, ung. hydrarg., and ung. belladonnæ.

Some months ago my attention was called to the possibilities of guaiacol as a local remedy in the treatment of epididymitis. Investigations were at once begun at the University and Polyclinic hospitals looking to the efficacy of this drug in this affection. The results were so gratifying that I feel justified in giving this additional testimony to the value of guaiacol as a local treatment in epididymitis. The remedy was used in sixty acute walking cases. In all but six great relief from pain followed during the course of the first twenty-four hours after application. In many the relief occurred in a few hours. All were able to keep on their feet during the whole of the attack with fairly little discomfort. The application of the drug was followed in all cases by a smarting and tingling sensation in the skin lasting for about an hour. Dermatitis did not occur in any case.

The method pursued in carrying out this line of treatment was as follows: The testicle was first gently massaged with a small amount of a twenty-per-cent guaiacol ointment made up with lanolin. Some of this ointment was then spread upon lint and applied over the affected testicle; the whole of the scrotum was enveloped in a layer of absorbent cotton, and over this was applied a snugly fitting laced suspensory bandage. In many cases where this bandage could not be procured, the dressing was kept in place by means of a 1½-inch gauze bandage. This dressing was reapplied every other day. At the end of about six days, when the inflammation and pain had entirely subsided and the testicle could be easily handled, the following ointment was substituted as a dressing in place of the guaiacol:

> Ung. hydrarg.,
> Ung. belladonnæ,
> Ichthyol,
> Lanolin, āā ʒij.

Under the use of this ointment the testicle was found in most cases to return to its normal condition in from two to three weeks; much less time was needed in many instances.

This is the line of treatment in vogue at present both at the University and Polyclinic hospitals, with most satisfactory results. Epididymitis being a self-limited affection, nothing can be said to cure it; but the above line of treatment, if carefully carried out by the physician himself and not entrusted to the patient, will be found to afford the greatest relief—sufficient at least to enable many a patient to maintain his reputation for respectability in the com-

munity. In private practice I think possibly guaiacol vasogen would be found to be superior in value to an ordinary guaiacol ointment.

THE USE OF CITRIC ACID FOR THE RELIEF OF OZENA IN ATROPHIC RHINITIS.

By Lewis S. Somers, M.D.,
Philadelphia, Pa.

The insufficiency of therapeutic measures in certain diseased conditions is indexed by the large number of drugs recommended for the cure of the disease, this being notably so in atrophic rhinitis, for in this morbid process, the *bête noire* of the rhinologist, medicinal measures innumerable have been tried, but unfortunately with little or no success. The reliance upon any single remedy in atrophic rhinitis accompanied with ozena presages defeat for its employer, and here as in other affections a knowledge of the etiology and pathology is essential before treatment can be used with any degree of success. This may be better appreciated by the statement that many cases are dependent upon pathological alterations in the nasal accessory sinuses, and that the atrophic affection is secondary; the local application therefore of any powder or solution to the nasal chambers in ignorance of the sinus lesion will indubitably fail to give the expected relief, and it is so when the ozena is dependent upon any foreign material or mechanical obstruction intranasally situated.

In the successful management of atrophic rhinitis, therefore, and I use the term successful advisedly, absolute and thorough cleansing of the nasal chambers is the first desideratum. In a considerable number of cases uncomplicated with sinusitis, mere cleansing with hydrogen dioxide and an alkaline solution will virtually destroy the intolerable odor, so disgusting to those in the vicinity of the patient. Iodine, iodoform, and the various allied compounds have been used more than any other medication and have been of value, but in many essentials they lack qualities sufficiently valuable to perform all that has been expected of them. In recent years interstitial electrolysis, especially with the employment of copper electrodes whereby nascent cupric oxychloride is deposited in the tissues, has been used to some extent and is undoubtedly an advance over former methods; but this mode presents serious difficulties to its universal adoption, and unless perfect electrical mechanism is employed it is distinctly dangerous except in the hands of an expert. Serum, especially that antitoxic to diphtheria, has been warmly lauded by the Italian observers, but later reports show that the beneficial results formerly claimed for its use were not well proven, and in addition a much more serious obstacle presents itself, inasmuch as it is distinctly dangerous when here used, the degree of danger from its administration in a local nasal disorder being in my mind out of proportion to any value it may possess.

In the *Münchener Medicinische Wochenschrift* of April 11, 1899, Hamm published a report of cases of atrophic rhinitis, in which he used citric acid with considerable success for the purpose of relieving the ozena. Since that time I have employed this acid in a number of cases resisting the usual forms of topical treatment, and with but few exceptions found that it did all that its originator claimed for it.

The method of application is to thoroughly cleanse the nasal chambers of all crusts and débris, and with a powder blower cover the affected tissues with equal parts of citric acid and milk-sugar finely triturated. This is repeated daily, and it is claimed that the odor is dispelled and may remain absent for several days without further treatment, the general health of the patient is improved, and a cure of the disease may follow; although this is improbable, the major object of using the acid being the relief of the fetor. Hamm had a number of cases under observation for several months with no recurrence as long as the treatment was continued, but the only claim that he makes for the drug is its remarkable deodorizing property.

Citric acid derived from the lemon and lime, and present in many other fruits, has been used as a deodorant for a number of years in gangrenous sore throat and other conditions of the mouth and pharynx associated with fetid odors, but in the constant search for new remedies it has been discarded for oftentimes insufficient measures that had nothing to recommend them but their newness. It occurs in colorless and odorless rhombic crystals, is somewhat deliquescent, and is a preservative and antiseptic; but being non-toxic and markedly irritating to mucous membranes, it should be diluted with an inert powder such as sugar of milk when applied to the nasal membrane. The

powder containing fifty per cent of citric acid is entirely too irritating, and in my hands the best results were obtained by using twenty-five per cent or even lower, rapidly increasing the amount as the patient better tolerates it, care being taken that it does not enter the pharynx or larynx as pain is immediately produced, and in the latter spasm of the glottis will occur from the intense irritation.

In all the cases no other remedies were applied, except that the parts were cleansed with an alkaline solution, this being followed by hydrogen dioxide and again with the former solution, and all crusts removed. This was repeated every other day, and the patient was instructed to do the same three times daily and to insufflate into the nostrils a powder composed of citric acid 25 parts and sugar of milk 75 parts. With greater strength than this the beneficial results were more marked and appeared more rapidly than with the use of weaker powders, but this gain was not commensurate with the pain and irritation produced, so had to be discontinued. In from two days to three weeks the odor in all cases practically disappeared and was not noticeable, except when the cleansing was imperfect or the drug discontinued, when it would again appear.

The following cases were among some of those used to determine the value of citric acid, and received no other treatment except cleansing:

Mrs. K. B., aged thirty years. Has had atrophic rhinitis, with anosmia, ozena, and crust formation, for ten years. The nasal interior on both sides was a mass of fetid crusts, which when removed showed extensive atrophy, the odor being almost intolerable. The crusts were greenish-black in color and would reform in a few hours, so in order to keep the parts even reasonably clean daily treatment was necessary. Citric acid was used as previously mentioned, and within two weeks improvement was decided, so much so that small patches of tissue which had not undergone atrophy to a marked extent became hyperemic, the membrane instead of being pale became more or less congested, and the powder produced such an intense headache that she refused to allow it to be further used. The odor disappeared, the sense of smell to a perceptible degree returned, and the crust formation was markedly diminished. In this case, therefore, where numerous remedies failed to give relief, citric acid was of decided value; but the good results obtained were dependent upon its frequent use, and as the patient was not willing to give the attention required for the proper care of the nose, her condition became as bad as before, except for short periods when she allows the acid to be applied.

Mrs. F. K., aged fifty-six years. Has had atrophic rhinitis for twenty years; the appearance of the parts was typical and ozena was noticeable, but not as prominent as in the previous case. The inferior and lower half of the middle turbinals were affected, so her ability to distinguish odors was not impaired to any extent. The odor disappeared within two days, and the crust formation ceased entirely within a month, the mucosa assuming a much better appearance than when she was first seen, while she is not troubled with the affection as long as she continues to use the powder.

R. H., female, aged eleven years. Atrophic rhinitis has existed for over one year and presents the usual characteristics, with partial anosmia, ozena, and considerable crust formation. Citric acid produced a decided improvement within two weeks, the scab formation lessened considerably, the odor was barely perceptible, and the improvement has continued, although there are times when the crust formation increases and the odor returns as a direct result of neglect.

N. H., female, aged fourteen years. Duration of disease two years; the inferior and posterior half of both nasal chambers are affected and filled with large crusts that at times completely obstruct nasal respiration. The sense of smell is but slightly obtunded, while the stench emanating from the nostrils is fearful. Within two days after citric acid was freely applied the odor was barely perceptible, and improvement has continued, the scab formation being inhibited to a moderate extent.

L. F., female, aged ten years. Has had atrophic catarrh since she was five years of age. The lower half of both nasal chambers is filled with thick crusts, which accumulate so rapidly that to establish nasal breathing it is often necessary to remove them by mechanical means, at least once every day. The sense of smell is impaired, and the fetid odor is terrific, being much worse than any of the other cases here reported, while the atrophy has progressed to such a degree that a perfect view of the nasopharynx can be obtained by anterior rhinoscopy. The girl had been under treatment for several years, but all

attempts at diminishing the ozena were futile until citric acid was freely applied to the nasal interior. Three weeks later the parents stated that the odor had entirely disappeared; but on close examination some odor was still present, but not in any way comparable with that which had previously existed. This case ran the usual course; she considered herself better, neglected cleanliness, and the symptoms returned, but not to the former extent.

The most successful case was that of R. P., female, aged eighteen years, with atrophic rhinitis of eleven years' duration, a greater part of which she had received treatment without benefit. The nasal interior was much atrophied, crusts were abundant, and ozena was almost intolerable; so bad was the latter that she had given up her friends and could not go to any public entertainment. The sense of smell was destroyed, probably due to the crust formation, as after a few weeks' use of citric acid it returned sufficiently for her to appreciate the more common odors. She improved in three weeks and continued to use the citric acid for a number of months, although the crust formation has ceased, her general health has improved, the ozena has disappeared, and she stated that since using the powder she could go in any public gathering, which had been impossible for several years previously.

The most distressing symptom of this form of rhinitis is the fetid odor, the so-called ozena, the abolishment of which being the object for which the patient seeks relief. Not only does it affect the patient's health by isolating him from society, but mental depression is often present from this cause, it being most frequent to find these people melancholy and misanthropic. Citric acid is essentially a deodorant, and although it does not in any direct way cure the disease, because nothing will restore the tissues when once atrophied, yet indirectly it is of vast benefit by removing the horrible odor. After all crusts have been removed and the parts covered with the diluted acid, it will be immediately appreciated both by the patient and his friends, and especially by the physician, that the odor has disappeared, in many cases to remain in abeyance for several days. The fetor will also be markedly diminished if a considerable quantity of the drug be placed in the nares even without removal of the offending secretions; but, of course, under no circumstances is it advisable to use it in this manner, as it will prove of only transient value, and in no way aid in improving the intranasal condition. The secretion of the membrane is somewhat increased and the crusts are more easily removed, while in several of the cases an attempt at restoration of portions of the mucosa was evident as long as the patient was under active treatment.

The following conclusions seem warranted by my experience with citric acid in this most troublesome affection:

1. The drug is of great value in preventing the fetid odor of atrophic rhinitis.

2. The successful action depends upon its direct application to the diseased tissues; for this reason the removal of all foreign material is absolutely necessary.

3. After its use the ozena usually remains absent from one to two days, and in exceptional cases longer, depending upon the extent and severity of the morbid process.

4. It exercises no direct action upon the morbid tissue in the direction of restoration to its normal functions.

5. Unless used at more or less regular intervals its action is but transient, and the ozena speedily becomes prominent again.

6. To a moderate extent it inhibits scab formation.

7. Finally, citric acid is an important addition to the therapy of fetid rhinitis by enabling the rhinologist to successfully combat the chief and often only complaint of the patient—ozena.

3554 North Broad Street.

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*THE ETIOLOGY AND TREATMENT OF EPISTAXIS.**

By P. S. Donnellan, M.D.,
Laryngologist to St. Agnes' Hospital, Philadelphia.

The patient whom I present to you this evening was admitted to the hospital two days ago with a severe attack of epistaxis resulting from a brick having fallen upon his nose while at work. On examination we find he has a compound fracture of both nasal bones and of the perpendicular plate of the ethmoid. The bleeding occurs in the right side of the nasal cavity only, and we trace its source to the septal artery, which has been torn by the injury. He has lost a very large quantity of blood, as you will observe from his pallid appearance, his feeble heart, and his weak pulse. He states he has

*A clinical lecture at St. Agnes' Hospital, Philadelphia.

never before bled profusely from any injury, and as far as he knows his family are not "bleeders;" so that we are justified in excluding hemophilia as a causative factor in the case, and will consider it one of epistaxis due to traumatism. All the simpler expedients for stopping the hemorrhage have been tried without success, so we will proceed to pack the right posterior naris in the hope that we can arrest the bleeding. Before doing so, however, I will avail myself of the opportunity to say a few words on the etiology and treatment of epistaxis or nosebleed. It is frequently a prodromal symptom of the acute specific fevers—especially of pneumonia, malarial or typhoid fever. We sometimes find that an attack of nosebleed will cut short a nervous headache or avert a fit of apoplexy in plethoric individuals who have a rush of blood to the head, or in elderly people with sclerosed arteries. Epistaxis in many instances is an accompaniment of renal, hepatic, or cardiac disease, and may also occur as the result of straining at stool, in violent blowing of the nose, or from picking the nose to remove inspissated mucus. In females an attack of nosebleed may suggest the existence of pregnancy or vicarious menstruation. Cases are occasionally seen without any apparent exciting cause and are due to hemophilia. Among other causes of epistaxis may be mentioned blows or falls on the nose, surgical operations on the nasal cavities, bleeding polyp of the septum, and carcinoma, tubercular disease, and syphilis of the nose. The site of the hemorrhage is most frequently the septal artery—a branch of the internal maxillary.

In considering the question of treatment, it is well to remember that hemorrhage from the nose due to cerebral congestion, especially in elderly people, must not be checked too quickly. It is a blessing in disguise and may avert a cerebral hemorrhage. Many cases cease spontaneously; but where the bleeding is excessive, any of the following expedients may be tried, viz., spraying the nose with a five-per-cent solution of antipyrin, alum, tannic acid, or extract of suprarenal capsule. The use of local applications of tincture of the chloride of iron or of Monsel's solution is not to be advised, owing to the irritation produced by the clot which is formed, and which may result in inflammation of the frontal, maxillary, or sphenoidal sinuses. Iced compresses placed over the nose, or peroxide of hydrogen either sprayed in the nasal cavity or applied directly by a cotton-wound applicator, will sometimes be successful. Where the source of the hemorrhage can be seen under proper illumination, the application of a slender hemostat or the galvanocautery at a dull-red heat will occasionally suffice to check the bleeding. Packing the anterior naris with strips of gauze or with a Bernays sponge of suitable size, and steeped in a twenty-per-cent solution of tannic acid, will in many instances serve to control the hemorrhage.

Where these measures prove unavailing, as in the present instance, we will have to plug the posterior naris. This may be done by Bellocq's sound, or, as we propose to do, by a large-sized flexible gum elastic catheter, around the eyelet of which we tie the end of a stout ligature about a yard long. The catheter and string attached are inserted in the nostril from which the bleeding is taking place, and are passed back along the floor of the nose to the posterior pharyngeal wall, where they are seen when the patient opens his mouth. They are grasped with a long forceps and pulled forward through the mouth. The catheter is now removed, leaving the ligature in place. About twelve inches from the buccal end of the ligature a pad of gauze one inch in diameter is firmly tied and is pulled up into the posterior naris by traction on the nasal end of the ligature. When the pad is in place the ends of the ligature are tied together and attached to the cheek by means of a strip of adhesive plaster. The anterior naris, from which the hemorrhage has been taking place, is now lightly packed with gauze, and if the packing has been properly done the bleeding will cease at once. On account of the danger of sepsis, the packing should be removed within twenty-four hours and the nasal cavity douched with normal saline solution and afterward with solution of permanganate of potash 1-to-3000. If the hemorrhage has not entirely ceased, the nose should be repacked as before.

In a severe case of epistaxis the patient may become so exhausted from loss of blood that we may have to resort to subcutaneous or intravenous injections of normal saline solution to reestablish his circulation and to keep his heart beating. In addition to this he should be given hypodermically $\frac{1}{20}$ grain strychnine and $\frac{1}{100}$ grain nitroglycerin every four hours, alternating with two ounces of alcohol, and have concentrated nourishment in small quantity at frequent intervals. He should have heat applied to his extremities,

and be kept at absolute rest in the recumbent position until all evidences of collapse have disappeared.

THE USE OF CROTON OIL IN PRACTICE.

By A. K. Bond, M.D.,
Baltimore.

The use of the seeds of *Croton Tiglium* as a purge by the natives of India, its habitat, has been common from earliest times, and they were employed to some extent by Europeans in the middle ages. The oil of the seeds appears to have been introduced into therapeutics at the beginning of the present century. In our own day, as is evident from a perusal of later therapeutic text-books, the drug is considered rather an agent of last resort in desperate emergencies whose possible effect upon the patient is as much feared as respected. The comments upon its therapeutic virtues are very brief, the writers evidently having had but little use for it; and such summary statements as that "croton oil is a violent drastic and hydragogue cathartic, and may excite an erythema even when taken internally," are not likely to incline the young physician to an extensive practical study of its powers. Having myself administered it frequently in the past eight or ten years of practice and found it a perfectly manageable and very serviceable purge, in some cases taking a place that no other drug seems able to fill, I have, after long hesitation, ventured to present this short study of its virtues, and to attempt an explanation of the prejudice which has arisen in some quarters against it.

Dosage.—This prejudice is due, in some degree, to an error as to the dosage of the drug. The impression gained by perusing the text-books is that the representative dose of croton oil is about one drop. This, I believe, is utterly wrong, as well as unfair to the drug. Men do not estimate the effect of a breeze by studying the track of a tornado. One- or two-drop doses of the oil are about on a par dosimetrically with forty grains of calomel or with one grain of morphine—which are undoubtedly efficacious doses, but surely cannot be considered to represent the usual beneficial activities of these drugs.

The fact is, the ordinary dose of croton oil is from one-eighth to one-sixth of a drop, this quantity giving a gently purgative action, without violent or even disagreeable results. I remember that one patient, a man of delicate build, asked specially that he might be permitted to repeat certain pills which contained this dose, as they were the gentlest and most agreeable purgative he had ever taken. Larger doses than one-sixth of a drop must (and the same is true of morphine and other excellent remedies) be given with a cautious regard to the emergency presented, to the physical vigor of the patient, and to his known tolerance of the drug. There are, of course, certain contraindications to its use, the most important being great heart weakness, or actual inflammation of the digestive tract; and the larger doses must be repeated with great caution. I do not, on the whole, regard croton oil as a more dangerous drug than morphine, which, though it has very many deaths to its credit (croton oil has extremely few, if any), is used without hesitation in many cases where safer drugs might be found.

Another cause of prejudice against croton oil is the alleged uncertainty in the force of its action. This is a very obscure subject and demands accurate investigation. Careful druggists whom I have consulted deny that the drug varies in strength. Standard therapeutic text-books say nothing on the subject. An older writer, Pareira, says that a dark yellow, thickish variety is reported to be more energetic than the straw-colored specimens. The United States Dispensatory, describing these two varieties, states that croton oil is often in its manufacture adulterated by milder purgative oils, and gives weight to a statement that croton oil becomes more irritating (hence doubtless more violent) as it ages. (It describes the German official oil as being of a harsher variety.) The correction of such sources of therapeutic uncertainty is clearly within the power of the pharmacist and manufacturer. In order to avoid these variations in power I am accustomed to furnish the larger doses from a vial of known potency in my own possession, ordering only the smaller doses by prescription.

A third cause of the prejudice against croton oil is unavoidable, depending upon the peculiar conditions of hypersensitiveness toward purgatives which sometimes exist in patients who usually respond in a normal manner toward these agents. Sometimes a small dose of a simple household purgative will act violently and greatly prostrate the patient; sometimes a stronger agent used when milder ones have failed will

set off at once the whole series of drugs taken in several days, much to the discomfort of the patient. To such concomitant conditions I ascribe the only case of excessive purging which as small a dose as one-third of a drop has caused in my practice, the robust patient reporting that after two pills of one-sixth drop he "spent the whole night in the water-closet," while his wife, a frail woman, had taken one of the pills with gentle effect. He had, however, taken calomel and other things shortly before the croton oil.

In doses of one drop, or even of half a drop, croton oil will in most persons, I suspect, act with violence, causing great distress, with rushing watery stools, and dangerously depressing the heart. In the cases, however, in which it is most needed (where the bowel is temporarily insensitive and inert, as is the case in many obstinate constipations), these doses may be borne with no discomfort, but with great benefit. In my earlier experience with the drug I once or twice, in emergencies, sent the pulse and mouth temperature both far below normal with these larger doses. Since then I have preferred to test smaller doses first, unless the emergency is very urgent.

I give the drug sometimes in bread-pill made on the spot, being careful in subdivision. Manna makes the best pill by prescription. Capsules and hard pills may fail to be dissolved in the stomach. I think that the mixture of the drug with diluting oils lessens its aperient power, by making it less irritating to the mucous membrane of the digestive tract and so less likely to excite the sluggish walls to peristalsis. It may, however, be used to fortify castor oil, as its aperient powers do not wholly depend on its irritating properties. The putting of the undiluted oil upon the tongue should be avoided if possible, as considerable inflammation of the mouth has followed this act. This local irritant action is known to all by that skin-scarring which in many of our patients attests the revulsive efforts of old-time doctors. I have had one such patient who wears upon her bosom a vigorous growth of black hair perhaps two inches long, each hair springing as I recollect from one of the croton oil scars; the growth dating from the use of the oil.

Manner of Action.—Croton oil in moderate doses produces two or three small, usually dark-brown, stools, without severe pain, often without any pain at all. These stools are always, as I have seen them, soft (fluid, but not watery); and as they seem always free from lumps even when other purgatives bring lumps of impacted feces, I suppose that the oil must in some peculiar way excite the outflow of intestinal glands. In this dosage it never, I think, brings away great quantities of feces in enormous stools, as do castor oil and certain other domestic remedies. To illustrate by a rather crude figure, croton oil is the limited express, not the freight train. Its actions should therefore be followed by other less irritating purgatives which bring abundant stools, until cleansing is completed.

The special superiority of croton oil over other purges is seen in several conditions. Where the stomach (not inflamed, for croton oil is contraindicated in all intestinal inflammation, I think) is excessively irritable and everything swallowed is at once returned, the fresh pill of croton oil and bread-crumb will in my experience, if swallowed with the least possible amount of water, infallibly stay down. I have never known a patient to vomit it as a pill. I have known colocynth and other ingredients combined in a druggist's pill to come up after a time, while the croton oil set free would either stay in the stomach or come up only as far as the upper gullet, as was shown by the acrid, burning sensation which it produced. The importance of such a property or action in a purgative needs only to be stated to be appreciated, especially when there is added the advantage of minuteness of dose.

Again, in those so-called "bilious" states where ingesta simply collect in a non-absorbing stomach and are from time to time vomited, mixed with a great quantity of bitter liquid, the croton oil is of great value. Though other medicines are evidently unabsorbed (simply mixing with the bile-pool until the next vomit), the croton oil, if given alone in a soft, friable pill, remains and, I suppose, by the irritation of its oily droplets as they float undissolved upon the walls of the stomach and duodenum, excites a downward peristalsis which forces the bowels and thus relieves the stomach of its load. I have repeatedly seen this result of croton oil administration. There is no other drug which can be depended upon to produce the same result. I have seen senna tea do it, but no ordinary patient will take it; and the forty-grain doses of calomel used, probably for this purpose, by the fathers, are out of date in this community. I have tried to replace croton oil in such cases by fractional doses of elaterium, which may be simply placed on

the tongue, rubbed up perhaps with butter, as a friend has suggested; but in the latter drug I have not as much confidence that it will meet the needs of these cases.

It is perhaps in cases of acute blood pollution by decomposing fecal masses which the bowels refuse to pass on and out that the most beneficial results of croton oil are obtained. This condition of "acute stercoremia" is at the bottom of many clinical conditions which would not at first view seem to bear any relation to it. The patient and the nurse may declare that satisfactory evacuations occur either with or without the usual simpler aperients. More careful observation, however, shows either that the stools are still hard; or that they are insufficient to contain the amount of fecal matter suspected to be in the large intestine; or that they are abnormally foul; or that while soft they contain hard lumps. A feeling of the patient that he is still unpurged; a spastic colon, cord-like in its hardness; dulness on percussion over it; a tongue that is large, flabby, bluish, and dirty in center (though it may be clean and moist); shifting pains and nervous symptoms (even convulsions), which are not assignable to any special category and are associated with unaccountable mental depression; local pain in any region simulating inflammation, yet lacking some symptoms of the latter and not appreciably affected for any length of time by considerable doses of opium, even hypodermically—these, with other symptoms of obscure causation, point very strongly to stercoremia. Sometimes the stools, the breath, or the skin emanations of the patient are so strongly tainted with the same peculiar odor that the saturation of his whole body with fecal substances is evident to even the least observant of attendants. (This stercoremic state is very strongly developed at times in typhoid and other abdominal fevers, and causes many apparently unaccountable relapses occurring in convalescence from these and other severe fevers; but, of course, I do not advocate croton oil in such depressed conditions, where cleansing can as a rule be obtained by repeated doses of such mild agents as one-twentieth grain of calomel, or half a drachm of magnesium sulphate.) The urine will probably give the indican test in excess of normal. Sleep will usually be unsatisfactory. I am convinced that many physicians fail to catch the meaning of such symptoms, and ascribe them to "typhoid fever," "appendicitis," and other diseases, or class them under "reflex" and "functional," titles which were invented of old to conceal ignorance. When evacuation of the poisonous mass is not attained either by medical agencies or by the aid of Father Time, it is no wonder that ulcers of the large bowel, distant abscesses, and secondary infections of various sorts occur. The doctor who does not appreciate the situation will after an ineffectual use of aperients, or even without these, betake himself to quinine, etc., for the fever, to morphine, etc., for the pain, to the surgeon for resultant abscesses, until by the time the pathologist gets at the corpse the whole business is so mixed up with drug effects, starvation processes, and secondary diseases that the original cause is no longer distinguishable. In the distribution of wisdom among physicians, the understanding of these states seems to have been bestowed on many who have been debarred from the latest scientific accomplishments, and even from college chairs, and by means of this insight they survive in the struggle for allegiance of the public. Yet among the strongest supporters of these views concerning stercoremia are many college professors. One of these gentlemen, a surgeon of high repute and great experience, declared recently that he has seen one or more cases of "appendicitis," when deemed ready for the surgeon, cured by croton oil administered until its evacuant effect was secured.

The "high injection," if skilfully and repeatedly given, through a soft "rectal tube," will undoubtedly in time relieve nearly all of these cases, washing out the fecal matters little by little from below. But the pain of this method may be very severe, it takes considerable time, it is so disagreeable that many patients will fight a long while against it, and it requires an amount of tact and training in the attendant that is not often to be obtained. Mouth medication is therefore the most generally feasible mode of relief. As the pockets of the large bowel and the cæcum are in certain of these cases plastered and packed with a thick and tenacious accumulation of fecal matter (accumulating perhaps for weeks), until the distended walls of the bowel have for the time lost their normal contractile power, the ordinary aperients such as salts and castor oil simply meander by a sinuous track through these abutting masses and pass out by the rectum with a liquid stool from the small bowel. The decomposition of the fecal layers next the mucous

membrane continues indefinitely to poison the blood-stream, unless inflammation or a natural process of disintegration causes them to be cast off. In the milder cases of this sort croton oil will somehow initiate the softening and expulsion of the fecal masses, perhaps by some peculiar power of starting glandular action and peristalsis in adjacent uncovered parts, it being a local irritant as well as a systemic purgative. It will thus open the way into the masses for the action of other aperient drugs. In the severer cases the dose of croton oil required may be one which the physician fears to throw directly into an already irritated bowel; and, after quieting the stomach and getting the confidence of the patient by small doses of croton oil, he induces him to take several ounces of a bland oil such as sweet oil, and then by a large dose of half a drop or a drop of croton oil starts convalescence without danger. I need hardly state that if he delays until actual inflammation, whether of the appendix or other bowel parts, has set in, the time for croton oil has passed.

There is a milder state of fecal retention, without impaction, in which I have found the drug useful in smaller doses. Such cases are those in which a tolerably vigorous convalescent "catches cold," or in some other way gets a not hardened decomposing mass shut up in the small or large bowel, with the above described body symptoms in mild degree resulting. Opium, whether hypodermically or otherwise (and even at times, I think, codeine, though very rarely), will likewise in some patients produce this septic retention. It occurs suddenly, within a few hours, and its nature is generally misunderstood, as the tongue may remain clean and moist. Various aperient agents may restore action, often with a foul passage. Sometimes I have found it best with reasonably vigorous patients to carefully use the one-eighth- or one-sixth-drop doses of croton oil. Especially in the opium constipations is this drug likely to be required. If pain is a prominent symptom of the stercoremia more opium may be demanded by the patient unless the mass is removed by purges, and gradually the opium habit is formed. I am very careful now to put off opium as long as possible in neuralgic patients, finding that by purgation and the use of non-constipating sedatives the case is abbreviated. Where I have been compelled in emergency to use large doses of opium, I have found sometimes that the large croton oil dose required for evacuation and permanent relief of the disordered nervous and general system is borne without any discomfort whatever, acting with unusual gentleness. I once made a brief study of the effect of combining a fractional dose of the oil with the opium, but got no improved result from the combination. The tendency of patients to these stercoremic states is apparently increased during influenza epidemics; at least I find fewer occasions for the use of croton oil when influenza is not showing itself widely in the community.

Effect on Other Organs.—The influence of croton oil upon other organs than those concerned in digestion, as upon the kidneys, the circulatory organs, and the nervous system, appears to depend to some extent on its action upon the digestive tract. I have been told that sometimes it fails to act upon the bowels and becomes then wholly diuretic, but I have never seen such a case. It is easy to understand how an agent which removes from the bowel a focus of blood pollution, and at the same time stimulates to action the great intestinal secreting organs, will thereby relax the arterial tension and relieve the inequalities of circulation which are directly called forth by the circulation in the vessels of irritating substances of intestinal origin; and how, to this beneficial effect, will be added all those benefits which follow the restoration to normal function of kidneys irritated by abnormal blood ingredients into imperfect performance of their purifying duties, and the relief of the nervous system from the irritation caused by the impure blood which is furnished to it. For acute stercoremia not only disturbs nutrition and endangers the integrity of the bowel wall, but it produces manifold disturbances of circulatory equilibrium, opening the way for sundry secondary infections; it calls forth disturbances of the nervous system varying in severity from neuralgia to convulsions, and by interference with kidney action it may add to these evils all those which we commonly call uremic. Whether we consider one or the other of these conditions as the immediate cause of the patient's troubles, it is evident that if stercoremic pollution is the first cause of them all, the simplest and best remedy is the restoration of the bowel to a normal state.

Illustrative Cases.—I have by the use of one-sixth-grain doses of croton oil obtained quick relief from "water-brash" (when the patient was expectorating or vomiting quarts

of a "mawkish," nearly colorless, and neither sour nor bitter liquid).

In the nauseas of nephritic and other patients it has often done me good service. At the suggestion of a fellow physician I tried it in very small dose with a patient suffering from vomiting of pregnancy; but though it did some good, I soon replaced it by rest and careful feeding.

In various grades and forms of stercoremia and fecal impaction I have used it many times during the past ten years, and after comparison in the same cases with a host of other remedial agents I judge it to be, thoughtfully applied, perhaps the most valuable of them all. Some of my friends say they cannot get these same results; but I continue to get them as before, and am learning how to apply the remedy in ever new directions. Thus, since beginning this article, I have relieved quickly by croton oil (giving three one-third-drop pills at half-hour intervals, and an hour later a whole drop) a most violent asthma with slight bronchial exudation which had resisted chloroform, nitrite of amyl, moderate doses of morphine, carbonate of ammonia with codeine, and purgative pills yielding small soft actions. I was told that a previous attack had lasted for weeks in spite of large hypodermics of morphine, extensive blistering, etc. The two drops of croton oil brought the respiration from fifty to twenty-four, lessened the pulse to about normal, without weakening it, and enabled the patient to lie down and sleep comfortably. I believed, and still believe, that this asthma was due to blood pollution from an influenza stercoremia. Asthmas of other varieties sometimes yield nicely to morphine; I think it only harmed this patient. In a patient pregnant two months, who had repeatedly miscarried from tubal sensitiveness, an acute stercoremia seemed to threaten miscarriage by exciting uterine irritation; and being determined to secure bowel evacuation I very cautiously carried the dose to nearly a drop, relieving the stercoremia and producing no uterine contraction whatever by the purge. This was interesting, as the patient was pale and delicate, had much nausea of pregnancy, and had seemed several times on the verge of miscarriage. In ordinary sick-headaches, many of which are stercoremic, moderate doses of the drug may of course be used with benefit.

In epilepsy, where a warning or aura is present, I am accustomed to order pills with small doses of croton oil to be kept on hand and taken if the patient suspects a convulsion is impending. As the immediate cause of many of them is undoubtedly undigested or decomposing food, this seems a reasonable plan to try. Sometimes it apparently puts off or aborts the attacks. In other convulsions of adults, whenever I fear at all a stercoremic cause, or even am not sure it is not present, I add purges to my other remedial agents; and if the attacks are quickly repeated I give croton oil, carefully or heroically (one drop), according to the emergency and general conditions, yet recognizing that large doses are dangerous and that it would be better for the doctor that the patient should die of convulsions than of croton oil. I have repeatedly relieved alcoholic and nephritic patients in this way. The most striking case of the sort was that of a parturient who several hours after a hard forceps delivery had convulsions (non-hysterical), and had them at short intervals for eight hours. Morphine (one-fourth grain hypodermically), chloroform (which brought her to consciousness), chloral, and other remedies failed to check the convulsions; bleeding from both arms stopped them, but did not remove the hard pulse, the nausea, and the headache. Believing that they still threatened and that they were stercoremic, I added to two half-drop doses given earlier a whole drop of croton oil, softening the pulse, stopping the nausea and headache, and making the patient comfortable. The good work being completed by other purges, she made a good, quick recovery from lying-in, nursing her baby well and gaining ruddy vigor. I could not find any evidence whatever of either nephritis or puerperal sepsis, and can ascribe the convulsions to nothing save a foul stool removed by the croton oil.

Lest I weary the reader I will refer to but one other class of cases in which I have used the drug successfully. It is illustrated well by a patient who came to me with intense throbbing pain in a finger. It looked a little like a deep felon, but from the absence of swelling and the general appearance I judged that the whole process, including the strong pulsation of the arteries in the finger sides, was some form of acute congestion, the pain being mainly due to tension. Judging an incision unwise I gave some moderate doses of croton oil, with immediate relief and cure of the whole trouble, probably by lowering vascular tension.

Summary.—Croton oil is a powerful purge

of great value, which differs in some degree from all other cathartics in that it is a direct local irritant to the bowel, a property which appears to greatly aid its action in some cases of intestinal inertia where other drugs fail.

The average dose of the drug should be stated at one-sixth drop, in which dose it acts gently, if fresh and of good quality.

In doses of one drop it may act very violently, depressing the pulse and temperature greatly; but in cases of great bowel inertia its action is usually gentle. The dose should therefore in vigorous patients be proportioned with caution to the known bowel resistance offered.

It is best given alone, in bread-pill or in fresh prescribed pill, as with manna.

Its chief value is in removing poisonous materials from an inert bowel or making a way through impactions which are poisonous; for small stools it is supplemented by other purges. It is contraindicated in bowel inflammation and must be carefully guarded in impaction.

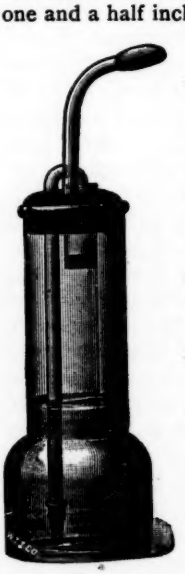
It is indicated in many sorts of vomiting, in "biliousness," and in certain acute stercoremic states, as headache, asthma, neuralgia, local congestions, epilepsy, and other forms of convulsions in the adult. I fear to use it in young children, as some suggest.

THE TREATMENT OF PHTHISIS PULMONALIS WITH THE NASCENT CHLORIDE OF AMMONIA.

By James C. Ballard, M.D.,
Health Officer of Adams County and Acting Assistant Surgeon, Marine Hospital Service, Natchez, Miss.

In the practice of every physician there occur cases of phthisis in which it is impossible for him to order a change of climate, sea voyage, or any of the expedients usually resorted to in the cases of his more fortunate clientele. These unhappy masses form the fuel that maintains the epidemic condition now existing in this country. It is for these people more especially that I offer the following suggestion, and I feel sure that many who try this method of therapy will be gratified with the results obtained.

As to the pathology of phthisis it is unnecessary to speak here; other pens have already exhausted the subject. But briefly, allow me to call attention to this fact: In incipient and advanced phthisis that part of the bronchial tubes and vesicles invaded by the tubercle bacillus is in a septic condition, and the nidus of the specific bacillus of the disease. It is possible for unaided nature to overcome and throw off the disease, but hardly probable. The question then arises how shall we, even in a measure, aid nature to rid the lung of these unwelcome intruders? Naturally we think of the antiseptics, and of course turn to the chlorides. Some years ago my attention was directed to the nascent chloride of ammonia as a remedy for chronic bronchitis, etc. I began to experiment with it, and discovered that it not only possessed undoubted therapeutic power, but, what was far better, it was a most excellent vehicle for other remedies. Below is a cut of the "Inhaler No. 1" which I use. The jar is filled three-fourths full of pure water and alkalinized with from twenty to thirty drops of aqua ammonia. Into this water is dropped the remedy selected (of this more anon). In the rubber cap of the jar is fitted a small test-tube about half an inch in diameter and one and a half inches long; this is filled with sodium chloride and saturated with pure hydrochloric acid. Over this salt vessel is a glass tube arranged to lack about one-fourth of an inch of touching the saturated salt, and descending into the ammoniated water. Then the mouth-piece completes the arrangement. Now the patient inhales the air through the inhaler; passing over the saturated sodium chloride, it gathers up a portion of the chlorine gas, and carrying it into the ammoniated water instantly forms nascent ammonium chloride, which in the form of dense white vapor is carried directly into the lungs. Repeated experiments show that this vapor not only acts as an antiseptic, but also as an expectorant and stimulant. Its effects are immediately seen and felt; the patient begins to gain in weight and strength. His nights are much quieter, and sleep is profound and refreshing.



As to the remedy to be introduced into the ammoniated water, each physician must select that remedy or combination which best suits each case. Some cases are most satisfactorily treated with this combination:

℞ Tr. iodin co.,
Ac. carbol., āā ʒ ij;
Glycerin, ad ℥ j.

M. Sig.: Five drops in water of inhaler before using.

Others find the following useful:

℞ Liq. iodoformis (10 per cent),
Campho-phenique, āā ℥ j.

M. Sig.: Twenty drops in water of inhaler before using.

Still others use:

℞ Guaiacol,
Terebene,
Menthol,
Thymol,
Spts. chloroformis, āā ʒ ij.

M. Sig.: Five to ten drops in water of inhaler morning and night.

Other remedies will naturally suggest themselves. The vapor is thus charged with the remedy, and introduced where it cannot fail to do good. Each and every one of the above mentioned remedies can be tasted and otherwise recognized in the vapor.

Be sure to instruct the patient to carefully wash the instrument every other day, throwing out all of its contents and renewing every part of it.

Do not neglect tonics, etc. They are helpful; especially so is nuclein, cod-liver oil, etc. Keep nutrition at the highest possible point. Urge your patient to keep in the open air and sunshine as much as possible. Use such other tonics as may seem of benefit. There is one other thought, and one whose influence is not to be despised, viz., suggestion. Your inhaler suggests to the sufferer that you are trying to do something for him. It inspires his confidence and gives him something tangible, and something he can think about. I do not believe this vapor will destroy the tubercle bacilli, but I do think that it lessens their activity and checks their propagation, thus enabling that greatest of all physicians, Nature, to destroy them. It will cure incipient phthisis if persisted in, and render the last days of others far more pleasant.

Lastly, its cheapness naturally recommends itself. After purchasing inhaler, which retails for $1, the monthly cost of treatment will hardly exceed 75 cents or $1. This places it within reach of the poorest.

I will be glad to answer any inquiry and offer any suggestion to a brother physician.

The inhaler is more pleasant to use if the rubber cap is removed from the tip of the tube which descends into the water.

CHOREA GRAVIDARUM.

MASTIER (*British Medical Journal*, Jan. 6, 1900; quoted from *Thèse de Lyon*) has collected 239 cases of chorea gravidarum and deduces several interesting facts. As is well known, chorea gravidarum usually appears in primiparæ from eighteen to twenty-four, but Mastier draws attention to a point not sufficiently emphasized, namely, that chorea frequently appears in a patient who has suffered from the ordinary form on some previous occasion. Moreover, chorea gravidarum differs from true chorea in several points notwithstanding its general resemblance. It is also shown that the majority of those who as children were affected with chorea do not show the least involuntary movement during the first pregnancy, though they may show symptoms in succeeding ones. Moreover, the neurosis of childhood may assume curious features under the influence of pregnancy. Thus a case is quoted in which a patient, whose mother was probably rheumatic, showed a considerable amount of "nervousness" during childhood, with gesticulations and hysterical spasms from the age of seven and well marked chorea at fifteen. During four pregnancies there was never any tendency to chorea, but there were well marked attacks of hysterical syncope in the first, and uncontrollable vomiting in the other three. In point of fact hysterical manifestations are extremely frequent in women during pregnancy who have suffered from chorea in childhood.

Chorea gravidarum may come on gradually or suddenly, and in the latter case is not infrequently due to a sudden fright or emotion. An interesting point is that the onset of the chorea may be accompanied by globus and other symptoms with which we are familiar in hysteria. In some cases the movements are so intense that alimentation is impossible, and the cases may rapidly come to a fatal issue unless by some means the movements may be reduced. Many of these cases show extreme constipation, a point of prime importance in treatment.

The author discusses the possible bearing of autointoxication in these cases. In the severer forms psychopathic symptoms are marked; there may even be maniacal delirium. Opinions differ as to prognosis, the author being inclined to think that chorea gravidarum is not the grave disorder that some medical writers would have us believe. This may possibly be due to the employment of intestinal disinfection.

The Therapeutic Gazette

EDITED BY
H. A. HARE, M.D.,
GENERAL THERAPEUTICS,
AND
EDWARD MARTIN, M.D.,
SURGICAL AND GENITO-URINARY THERAPEUTICS.

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Leading Articles.

HOW TO VACCINATE.

For many years the methods employed by the profession in vaccinating patients were open to grave criticism; indeed, looking back over the last twenty-five or thirty years it is surprising that so few cases of serious infection with other diseases than vaccinia have occurred.

Even after the "germ theory" had been universally accepted, and antiseptic surgery had been generally employed for more than a decade, we were still using the unscientific and almost surely septic vaccination methods of our predecessors. It has only been within the last year or so that truly scientific, cleanly, and aseptic methods of vaccination have been placed in our hands through the preparation of glycerinated vaccine lymph, prepared under rigid aseptic conditions and preserved in a manner that prevented it from becoming infected by microorganisms. Our ability to supply our patients with specially powerful, constantly active, and perfectly pure vaccine has emphasized the necessity of our employing greater aseptic measures in scarifying the skin.

It is interesting for a moment to note the great precautions which should be taken, and which are being taken, in the preparation and use of this very valuable prophylactic product. The heifers before being vaccinated are examined by a competent veterinary surgeon and tested with tuberculin, and if any evidence of disease is found the animal is rejected. Not only is this the case, but the heifers are then carefully scrubbed, shaved, and the surface of their bodies sterilized, before the inoculation takes place, and similar careful manipulation of the animal takes place when abstracting from the cowpock vesicles the lymph, which is to be employed for purposes of vaccination. The pulp of the cowpock is mixed with pure glycerin in order that we may have the aseptic influence of this substance, for bacteria are likely to be present despite the most careful manipulation of the vaccine-producing animal, and it is then put up in capillary tubes, each of which holds enough lymph for one vaccination. In performing the act of vaccination, the spot that is to be vaccinated should be carefully cleansed with soap and water, and then dried. No antiseptic should be applied to the skin at this time, unless it is carefully washed off with sterilized water before the act of vaccination is performed. A small area about one-fourth of an inch in diameter is then scarified with an ordinary steel needle or scalpel, and the tube containing the vaccine is inserted into the neck of the rubber bulb which is provided for the purpose of forcing the vaccine out of the tube when we are ready to place it upon the scarified spot. By pushing the tube through the bulb we then have the bulb resting about the center of the tube. The end of the tube to the right is then broken off and the tube pushed on through until the end is well within the cavity of the bulb; the left end of the tube is then broken off, when by squeezing the bulb the glycerinated vaccine lymph lying in the tube is expelled upon the scarified area. One finger should be held over the small hole in the top of the bulb made by forcing the tube through it, so that when the bulb is compressed the air which it contains will force out the lymph ahead of it rather than escape through the hole just mentioned. After the vaccine has been applied it should be rubbed in thoroughly with the blunt side of the steel instrument which has done the scarifying, and if there is any doubt about the epidermis

having been thoroughly removed, a little additional scraping or pricking is advisable to facilitate absorption.

This part of the technique being completed, ample time should be given for the lymph to dry upon the part before the clothes are replaced, since otherwise it will be rubbed off by the clothing. If the underclothing is perfectly clean, it may come in contact with the dry vaccine, but should it be soiled, a piece of clean, soft linen or cotton should be put over the vaccinated spot by means of an adhesive strip.

The following "don'ts" will give a clear idea of points which should be carefully avoided:

1. Don't prepare the site by washing with antiseptic solutions. Or if this is thought necessary—

2. Don't fail to rinse thoroughly with sterilized (boiled) water, and dry.

3. Don't draw blood if you can help it. A gentle oozing of serum gives much better results.

4. Don't fail to rub the vaccine thoroughly and persistently into the abrasion.

5. Don't replace the clothing until the vaccine is thoroughly dry.

6. Don't apply antiseptic dressings. (Many of our most successful vaccinators never use any dressing except in cases where there is danger of infection from the environment or uncleanliness of the patient.)

7. Don't expose vaccine to extremes of temperature. High temperatures spoil it.

8. Don't expect to find a swollen arm, indurated glands, high fever, and a suppurating ulcer—these belong to the old-fashioned means and methods of vaccinating.

9. Don't accept the word of the patient or parent as to the success or failure of the process. Examine the case yourself, and if you find a typical vesicle—or the remains of one or more that may have been ruptured and emptied—assure the patient that he is protected against smallpox.

10. Don't be in a hurry about passing judgment upon a "take." Sometimes the vesicles are delayed in their development.

The following additional facts are also of interest in this connection:

From every batch of vaccine a sample is taken by the manufacturers. A portion of this is planted to insure its freedom from pathogenic bacteria. It is found to be practically impossible to prepare a germ-free vaccine, as the spore-bearing germs like the hay bacillus are not killed by the glycerin. The pus germs are killed. With another portion an inoculation is made; unless this gives a typical vaccination the lot from which it was taken is destroyed.

A few individuals are refractory to vaccination, but in the large majority of cases due skill and care in the use of aseptic vaccine will be rewarded by the characteristic cowpox reaction, unattended by septic complications of any kind. This method of vaccinating requires much more time than the old way with pus-containing "points," but the difference in results will well repay the additional care.

THE EFFECT OF CHEMICAL PRESERVATIVES ON FOOD.

We have published in another column of this issue of the THERAPEUTIC GAZETTE an interesting abstract of a very complete and exhaustive research made by Professor Liebreich, of Berlin, upon the question as to whether borax and boric acid are capable of exercising a deleterious influence upon the human body when they are ingested for a considerable period of time in food preparations, in which they have been introduced for the purpose of preventing decomposition changes. This research of Professor Liebreich was carried out with his usual care and accuracy, and is illustrated by a number of colored lithographs, showing various portions of the intestinal mucosa in animals when under the administration of borated foods. Practically simultaneously with the publication of Professor Liebreich's paper, we have one presented to show the results of a very carefully carried out series of experiments by Fullerton, who is pathologist for the Middlesex Hospital, London. In the London *Lancet* of December 9, 1899, he concludes his research, which we believe to be of sufficient importance to deserve notice. As he well points out, most of these so-called preservatives are practically harmless, unless they are used in excessive quantities. One of the chief objections to them is that as they are tasteless, as is borax, in minute quantities, it permits dishonest tradesmen to sell foodstuffs as fresh when they are really not fresh, and this, perhaps, is one of the chief objections to the legalizing of their employment.

Fullerton extended his researches not only to borax, but also to formaldehyde. He believes that, "taking the case of milk first, it is extremely improbable that either of these preservatives, if used in the proportions men-

tioned in the beginning of this paper, would cause any injurious effect whatever to the average adult taking the ordinary amount of milk with his daily food. But because of certain possible injurious effects which might be produced the use of such preserved milk for invalids and young children taking large quantities is to be condemned. And, so far as these injurious effects are concerned, it appears unlikely that the digestive processes would be materially affected—or, indeed, affected at all—by the boric acid, but that toxic effects in a more general way might be produced by this preservative. Formic aldehyde, on the other hand, would probably have absolutely no injurious general effect in the proportions used, but would tend to lessen somewhat the digestibility of the milk. The necessity for legislation on this subject lies in the fact that these preservatives are, in the quantities used, tasteless, and so cannot be detected by the consumer. If, for instance, a preserved milk could be distinguished from fresh milk as readily as salted beef can be distinguished from fresh beef no necessity for legislation would arise. The consumer would know exactly the kind of article that he was buying, and there the matter would end. There would then be no more reason for prohibiting the sale of preserved milk than there would be for prohibiting the sale of salted beef on the ground that the latter was not suitable for making beef tea for invalid diet. But since the public have no means of distinguishing between a fresh and a preserved milk, special legislation does seem absolutely necessary. And such legislation, to satisfy the requirements of the public health, should provide that no preservative whatever, the use of which is not sanctioned by the Local Government Board or the Board of Agriculture, should be used for milk; that the proportion of such preservative should not exceed a certain maximum amount to be fixed officially; that the nature of the milk should be declared by the vender; and that it should be sold only as 'preserved milk.' And finally, the penalties for infringement of the law should be sufficiently heavy to render the sale of preserved milk as fresh milk unprofitable.

"With regard to other articles of food special cases must be dealt with on their own merits, but there is no other article of food in which the use of a preservative is so important as it is in the case of milk. It is, for instance, difficult to find any good reason for the presence of salicylic acid or other special preservative in such articles of food as jam, cheese, and pickles, whilst the use of certain preservatives as substitutes for alcohol is a matter of fraud, pure and simple. So also the use of a tasteless preservative in butter cannot be regarded as other than fraudulent unless the fact is declared; by using such a preservative the vender is enabled to sell as fresh butter what under former conditions would have been sold at a lower price as salt butter. The use of boric acid, again, for salting bacon and ham may or may not cause injury to the consumer, but in any case the latter should have the opportunity of exercising his own judgment on the matter as to whether he will eat that class of preserved food. And, in short, it appears that if the regulations suggested above for milk were applied to all other articles of food of a perishable nature the requirements of the public health would be safeguarded as far as possible, and at the same time the legitimate use of preservatives would not be interfered with."

It will also be remembered that Chittenden and Gies have reached conclusions very similar to those of Liebreich, and these various researches, confirming one another, give us good ground to believe that correct conclusions have been reached concerning this important question. Other researches carried on by Rideal, Fullerton, and H. E. Arnett have the same bearing.

THE QUESTION OF DIET IN TYPHOID FEVERS.

We have from time to time published in the pages of the THERAPEUTIC GAZETTE articles which have called attention to the importance of allowing patients suffering from typhoid or septic fevers to have a larger quantity of nourishment than is usually given them. Many years ago, when it was the custom of physicians to deprive fever patients of water, it also became the habit of practitioners to deprive them of food; and while, no doubt, patients suffering from various fevers have at times been seriously damaged by being allowed to partake of too large a quantity of foodstuff, we believe that the time has come when there is danger in depriving the patient of an amount of nutritious material which, were it given him, would enable him to withstand the inroads of his disease. We have quoted in

these columns a paper published by Dr. Shattuck, of Boston, in which, by means of a limited array of statistics, he has proved that the administration of a free diet to typhoid patients gave him a larger percentage of recoveries and greater speed in convalescence than did the maintenance of a strict milk diet in another array of patients; and Dr. Fitz has also published facts which support these views of Dr. Shattuck. In our own practice we have become convinced that while an absolute milk diet may be needed by a few patients, a great majority will be benefited if the physician will order them, in addition to full quantities of milk, from one to three eggs a day, and at times small quantities of boiled rice, still further softened by the addition of milk, and flavored with salt, which most typhoid patients can digest without difficulty.

We are wont to forget that the human body is so arranged that it must receive a certain quantity of proteids, carbohydrates, and fats, if it is to maintain its normal equilibrium, and when this equilibrium is perverted by an infectious disease of a prolonged and exhausting character, it would seem evident that all these articles of diet should be present in the patient's diet list, rather than that they should be limited, or entirely cut off. It is true that typhoid fever may be accompanied by conditions which render such a free diet inadvisable; thus we know that in all fevers, and in typhoid fever in particular, there is an almost complete cessation in the secretion of gastric juice, and therefore the stomach is unable to digest proteid substances in a large number of instances. This gastric inability may, however, be largely overcome if the physician will resort to the now almost universal, and without doubt admirable, plan of administering from five to ten drops of dilute hydrochloric acid, with or without the addition of pepsin, two, three, or four times in the twenty-four hours. This use of the acid is necessary, even if milk alone is given, in order that the stomach may deal with the proteid materials in the milk. The question then arises whether there is any other condition of the alimentary canal which should limit the diet of the patient. It is almost unnecessary to state that no food which is sufficiently solid to cause great muscular effort on the part of the alimentary canal should be ingested, not only on account of these mechanical conditions, but also because by reason of its solid character it is more difficult of digesting. Therefore, the important fact is to be remembered that liquid or semiliquid foods in some form, even when partly made of milk, are advisable in these cases.

What other condition, then, may be present in typhoid fevers which would limit the diet list? We are firmly convinced that in these diseases the condition of the alimentary canal is such that it is not wise to administer any meat or any animal broths. These animal broths, as is well known, are constantly employed in the bacteriological laboratory for the purpose of developing malignant microorganisms, and for the purpose also of increasing their virulence when experimental studies are desired. It is a well known fact that the bacillus of typhoid fever at once becomes exceedingly active and virulent in animal broth. We have, again and again, seen the administration of animal broth to typhoid patients cause at once an increase in tympanites, in hebetude from toxemia, and in general impairment of the patient's vitality; while on the other hand, when these broths are withdrawn from the diet list these symptoms at once disappear. For these reasons, therefore, we believe that animal foods, other than eggs, are as a rule contraindicated in this class of patients. In ordinary septic or hectic fevers, which are prolonged or wasting in their character, these objections to the use of animal broths do not always exist, and they may even—but not always—be given with advantage. Our attention has been called once more to this matter by an excellent article written by Manges in the *New York Medical Record* of January 6, 1900. In this article Dr. Manges quotes largely from what has been written on this important subject, both at home and abroad, and dwells particularly upon the statistics which have been published by the Russian clinician Bushuyev, which were quoted extensively by Dr. Thayer, of Baltimore, in his article in Volume I of Progressive Medicine for 1899. The statistics of Bushuyev are like those of Fitz and Shattuck and the experience of the writer, in pointing to the fact that a more generous diet in these diseases is desirable.

While we are anxious, therefore, to urge a more liberal feeding in typhoid fevers, and other prolonged and exhausting febrile diseases, we are not advocates of the reckless administration of food in these conditions; but we are firmly convinced that a patient will generally resist the virulence of the disease better, maintain his strength, and have

a more rapid convalescence when he is not confined strictly to a milk diet. The question of dietetics in typhoid fever is much like every other therapeutic question in the sense that the patient fares best when his physician does not adhere to any routine plan of treatment, but fits his drugs, his bathing, and his feeding to the needs of the individual case.

THE VALUE AND ACTION OF ALCOHOL AS AN ANTIDOTE TO CARBOLIC ACID.

We have already published in the Progress columns of the THERAPEUTIC GAZETTE a note in which we have called attention to the fact that alcohol may be used as an antidote to this very poisonous drug, and some years ago we called attention, editorially, to the very large number of cases of carbolic acid poisoning which are constantly occurring in this country and in Great Britain. In England, Dr. Mann has shown that the increase in the number of cases of carbolic acid poisoning is very extraordinary. Experience is continually accumulating which proves beyond all doubt that in the rapidity of its action it closely resembles so active a poison as hydrocyanic acid, while it is also capable of causing, when smaller doses are taken, grave primary and secondary lesions, not only in the gastrointestinal tract, but also in various important organs, such as the liver and kidneys, in which it often causes fatty degeneration, and in the lungs and larynx, where it more rarely produces pseudomembranous exudation, which may interfere with respiration.

Because of the fact that the laity have become so fully aware that carbolic acid is so lethal in its effect, it is a very common thing for it to be taken with suicidal intent; indeed, the number of cases in which it is taken accidentally, as compared with the number in which it is taken purposely, is very small. It is well, therefore, for the physician to remember the antidotes which he should employ when called to a case of carbolic acid poisoning.

The experiments originally published by Dr. Phelps, of New York, showed beyond all doubt that alcohol was capable of modifying or entirely preventing local lesions produced by carbolic acid; or in other words, that even if pure carbolic acid was poured over the hands, and the hands were immersed in alcohol, the individual escaped from the characteristic destruction of the skin produced by this acid; and even in the case of the tongue, earnest experimenters have projected the tip of it into a bottle of pure carbolic acid, and then immersed the tip in a bottle of alcohol, and claim that the mucous membrane covering the tongue escaped serious damage. It seems, therefore, to be positively proved that so far as this local effect is concerned, alcohol is capable of preventing the destructive activity of phenol. Naturally, if this is the case, we would expect alcohol to be the ordinary antidote in cases in which carbolic acid has been taken internally; and practical experience has proven that this supposition is correct, for at the present time quite a large number of cases have been recorded in which alcohol has been freely given after carbolic acid has been swallowed in excessive quantities with beneficial results to the patient. Under these circumstances not only does the patient get the benefit of the chemical antidote, but he also, if the alcohol is given in excess, has the advantage of the stimulation of his circulatory system by this well known stimulant. That a large quantity of the alcohol ingested is directly used in producing an antidotal effect is proven by the fact that even where large quantities of the liquid have been given, it has not produced any sign of alcoholic intoxication.

The question then naturally arises as to the chemical change which takes place in the alcohol and carbolic acid when they come in contact, and in this connection we regret that we are unable to present to our readers any satisfactory explanation of its action. Inquiry of two well known chemists and toxicologists results in the statement that the explanation of the clinical fact is not at hand. However, researches at present under way promise to clear up this matter from the theoretical side of the case.

For many years physicians have properly considered one of the soluble sulphates, preferably sulphate of magnesium or sodium, as being the best antidote to carbolic acid. From certain experiments which we have made in the past, we believe this opinion is entirely correct, and that magnesium sulphate, sodium sulphate, or some other innocent soluble sulphate is to be considered an exceedingly useful antidote to this poison. Whether alcohol will prove itself a more efficient antidote remains to be seen; certainly it is one which is more readily obtained as a rule. This is emphasized by the fact that whiskey or brandy may be employed when stronger alcohol is not at hand.

THE THERAPY OF PNEUMONIA.

We wish to call particular attention to the valuable summary of the best modern treatment of pneumonia in the Progress columns of this issue of the GAZETTE by Sir William Broadbent. His eminence as a practitioner and consultant makes his remarks at this time peculiarly impressive.

THE RADICAL CURE OF HERNIA UNDER LOCAL ANESTHESIA.

Though in young and healthy patients a general anesthetic probably will always be preferred to a local one when an operation for the cure of hernia is undertaken, in the case of the aged and infirm, and particularly in the case of those whose vitality is greatly lowered by the shock and septic absorption incident to strangulation, the danger incident to the administration of ether or chloroform may be so great that the surgeon may well hesitate to employ these drugs. Under such circumstances an efficient method of accomplishing local anesthesia without affecting the vital centers is, aside from its other advantages, life-saving. That the desired end can be obtained simply by infiltrating the line of incision with a weak cocaine or eucaine solution is believed only by those who have never tried it. Undoubtedly the pain may thus be greatly blunted, so much so that it may be borne readily by those who are stoical or non-sensitive; the deeper dissection will, however, be attended often by such intolerable anguish that a general anesthetic will have to be given. The accomplishment of a local anesthesia which shall be satisfactory to the patient requires much practice and a minute knowledge of the nerve supply of the part. An admirable study of this subject by Cushing has appeared in the *Annals of Surgery* for January, 1900, who states that since December, 1897, of the 233 herniotomies performed at Johns Hopkins Hospital, forty-nine have been under regionary anesthesia, mainly because the administration of ether or chloroform seemed inadvisable or positively contraindicated. Some pain was necessarily inflicted, and the operation consumed more time. For those individuals who endure pain with but slight control, the preliminary administration of morphine and occasional inhalations of chloroform during the operation may render the objections to the local method less valid. Nevertheless, the anesthesia of choice will continue to be a general and not a local one. The two conditions which have been chiefly responsible for the avoidance of inhalation methods of anesthesia have been (1) the combination of arteriosclerosis with cough from chronic bronchitis and emphysema in patients past middle life, and (2) the shock and vomiting associated with strangulation. Handling, resecting, and suturing the bowel should be unattended by pain. The same may be said of the omentum. Any attempt to drag upon the bowel, however, does cause pain, similar in character to that of peristaltic cramp.

Local anesthesia is especially suitable for such operations as the ligation of varicose veins, suprapubic cystostomies (even in patients who might safely take an anesthetic), and all scrotal operations, such as varicocele, hydrocele, castration, etc., provided they are performed through the high incision, and the ilio-inguinal nerve is previously cocainized in the canal.

To insure success in any major operation attempted under local anesthesia, an accurate knowledge of the course and situation of the nerves likely to be encountered is most essential, since the accidental division of an unexpected sensory nerve trunk is often sufficient to overcome whatever preliminary inhibition to pain the patient may have had, and thus to make recourse to complete narcosis necessary, in cases where it should perhaps be especially avoided. The early cocainization of the anastomosed ilio-inguinal and genito-crural nerves at the deeper part of the inguinal canal, after splitting the aponeurosis beyond the internal ring, is, perhaps, the most important step of the operation.

The usual anesthetic sequel is represented by a complete loss of sensation of the entire scrotal contents, cord, hernial sac, and testicle, with the possible exception of its lower vascular supply (superficial perineal), and by a cutaneous area of anesthesia which occupies the inner side of Scarpa's triangle, spreading over the adductor tendons. Division of the nerve is unassociated with any surface anesthesia of the scrotum whatever. The inferior pudendal of the small sciatic and superficial perineal of the internal pudic, therefore, supply in most cases the entire cutaneous surface of the scrotum. The ilio-hypogastric may be twice encountered in the hernia operation, its superficial supply by the skin incision, and its deeper trunk, as it

lies upon the muscle fibers of the internal oblique at a varying distance from the lower edge of muscle, by the incision which divides this muscle. Cocainization of the edge of this muscle before its division is, consequently, very necessary, especially since in addition to this main trunk, which usually may be easily recognized after exposure of the internal oblique, there are offshoots to the muscle itself from this nerve.

The anesthetic used was that advocated by Schleich, and it contains:

Cocaine mur., 0.1;
Morphinæ mur., 0.02;
Sodii chlor., 0.2;
Aqua destillata, ad 100.00.

Anesthesia accomplished by eucaine seemed more fleeting. For anesthetization of the individual nerve trunks, Cushing uses a one-half- to one-per-cent sterilized solution of eucaine β or cocaine, which is injected directly into the nerve.

In old men there was a previous confinement to bed for a day or two, to accustom them to this and obtain evacuations in this position. From one-tenth to one-eighth of a grain of morphine was administered hypodermically three quarters of an hour before and was repeated shortly after the operation.

The patients past middle age are usually shaved and prepared on the operating table to avoid any exposure incidental to an open ward preparation. The skin in the line of proposed incision is infiltrated with Schleich's cocaine solution, and the incision may be immediately made through the linear wheal thus produced. The infiltrated tissues are more vascular than usual, and it is important that all bleeding points be immediately clamped, since a dry and unstained field is essential to the success of the dissection. It is unnecessary and useless to attempt to anesthetize the panniculus. At the lower angle of the incision practically no nerves are encountered. If, however, throughout its whole length, this incision is carried down to the aponeurosis, unanesthetized fibers of the ilio-hypogastric will be encountered in the superficial fat at the lower angle, together with one or two large veins, division of which is painful, so that anesthetization of the panniculus layer is here necessary; or else, as has been done on several occasions, the incision only at the upper angle may be carried down to the aponeurosis, which is then opened in the line of fibers from the external ring, and the ilio-hypogastric and inguinal nerves immediately cocainized with a one-per-cent solution as they lie under it. After this procedure the lower angle of the incision may be painlessly carried down to the external ring and the remaining intercolumnar fibers of the aponeurotic insertion divided.

In the Halsted operation at this stage the internal oblique fibers are divided, preliminary cocainization of the edge of the muscle being necessary. There is, under ordinary circumstances, no further need of the anesthetic. The combined ilio-inguinal and genital branch, which has been cocainized at the outer limit of its exposure, is now reflected to one side. The remainder of the operation—the exposure of the sac and cord after a longitudinal division of the infundibuliform fascia, the amputation of the sac at its neck, and closure of the peritoneal opening, the excision of the fundus of the sac, division of the cord, and castration, if deemed advisable—may now be done practically without pain. Occasionally, however, some stray fibers of the genito-crural may be encountered about the neck of the sac, and also during castration the ligation of the veins at the lower pole of the testicle may be painful, though division of the cord above is not. Tightening the deep sutures in closing the wound causes some discomfort. The subcuticular silver suture, used in closing the skin, does not pass beyond the limits of the original area of cutaneous infiltration, and consequently may be placed without pain.

Patients have never complained of post-cocainization pain in the region of the incision, and healing seems to have been absolutely unaffected by the local infiltration.

In none of these cases has there been other than primary union. It is very unusual for the large starched or plaster dressings, immobilizing thigh and pelvis, to be cut down before the tenth or twelfth day, when the suture is removed.

The advantages of the local anesthetic are as follows: There is an avoidance of unpleasant or dangerous post-etherization sequelæ. There is no vomiting or retching to put strain upon the recent sutures. Urinary disturbances are much less apt to occur, and catheterization is rarely necessary. The diet continues as before the operation. There is no backache, since there is no narcosis to induce relaxation of spinal muscles. The dressings may be applied originally to suit the comfort of the patient, which is of especial importance in old people, and there is no subsequent disarrangement of them. Above all is the advantage gained in being able to

operate with comparative safety in patients who would incur immediate risk in submitting to general anesthesia.

The comparative non-poisonous qualities of eucaine β, and the fact that its solutions can be boiled without undergoing chemical change, more than counterbalance the single disadvantage it possesses of being a slightly less potent and more transitory anesthetic than cocaine.

Barker, in *The Lancet* of January 20, 1900, states that of many patients on whom he has operated with eucaine anesthesia, not one has ever regretted it. The solution he employed was normal saline, containing 1 in 1000 of eucaine. In many cases five or even six ounces of this solution was used without any interference with primary union. The method is not suited to children, to timid adults, or to operations on inflamed areas. The cases which he has operated on successfully include the radical cure of hernia, resection of intestines, gastroenterostomy, appendix operations, explorations of the gall-bladder, goitre, empyema, wiring of the patella, stitching a semilunar cartilage in the knee, and many minor procedures.

ORTHOFORM IN SURGICAL PRACTICE.

A sufficient time has elapsed since the introduction of orthoform to enable the student to gather from current literature a fair idea as to the value of this drug. It will be remembered that the power claimed for it is that of subduing pain when applied to raw surfaces. The reports of cases, now to be numbered by the hundreds, seem to justify this claim.

Luxenburger (*München. Medicinische Wochenschrift*, Jan. 9, 1900) has conducted an experimental and clinical research, with the idea of establishing the true value of this drug. By a careful series of observations, conducted with culture media, he demonstrates that the orthoform powder is in itself not only sterile, as supplied to the profession, but that it exerts an antiseptic effect which, though weak, is unmistakable.

It is found that orthoform can be mixed with dermatol, zinc oxide, europhen, or aristol, but not with bismuth subnitrate, without undergoing any chemical change. Luxenburger applied the drug either alone or in combination in 189 cases, and notes that with almost no exception pain was controlled; though sometimes there was a period of preliminary burning, lasting for three or four minutes after the application of the powder. All ulcerating or fungating surfaces, superficial or deep, even those involving bones, whether chronic or acute, seem to have experienced promptly the anesthetizing effect. Even such painful affections as carcinomatous ulcerations and anal fissures were promptly relieved by the orthoform. The anesthesia lasted from hours to days, usually about ten hours, and was sometimes so pronounced that a painless curettage could be practiced on an ulcerating surface.

It is worthy of note that the combinations of orthoform with vaselin and oil are less potent than the powder or its alcoholic solution, and that in some reported cases the application of the drug has caused intense pain. General testimony as to its power is, however, convincing. The fact that it is also an antiseptic will probably make it the most valuable dressing for extensive burns, since in these the pain alone is sometimes responsible for a fatal ending.

La Presse Médicale for December, 1899, considers orthoform applied directly or by insufflation a powerful and innocuous analgesic, indicated for the treatment of painful ulcerations, for the relief of the suffering due to cancer, tuberculosis of the mouth, throat, or larynx, and in fissures of the nipple. It has been administered by the mouth in five- to ten-grain doses for the relief of pain due to stomachic ulcer.

Reports on Therapeutic Progress

THE THERAPY OF PNEUMONIA.

In the *Practitioner* for January, 1900, Sir WILLIAM BROADBENT, in an article on this disease, says that pneumonia has been from time immemorial the battle-ground of therapeutics. Every theory and every line of practice has in turn appealed to the results obtained in pneumonia as proof of its truth and of its success. It was in pneumonia that the efficacy of venesection was supposed to be unquestioned, and it was by the application of the numerical method to pneumonia, and the consequent overthrow of this superstition, that Hughes Bennett banished general bleeding from medical practice in this country. So long as the clinical history of pneumonia was not observed apart from interference, and disease of all kinds was looked

upon as a morbid entity which had to be expelled by remedies, it is easily understood that the crisis, with the striking favorable change which then took place, was put down to the treatment employed—bleeding, stimulants, calomel and opium, mercury, antimony, or whatever happened to coincide with the improvement.

This is a lesson we may still take to heart. Pneumonia being a disease of short duration, with for the most part an assured critical termination in a few days, we can afford to watch and wait. The temperature is not a source of danger, either from the height to which it rises or from the time it will remain high. Nothing is to be gained, therefore, by violent efforts to reduce it, either by the external application of cold, or by antipyretic drugs. Cold or tepid sponging will be a comfort to the patient, and may soothe and facilitate sleep; beyond this it is not necessary to go. Antipyretics, such as antifebrin, antipyrin, phenacetine, given continuously, are not only useless but injurious. A single dose at the outset has, in the experience of competent observers, seemed to cut short an attack, and an occasional dose early in the disease may relieve headache and procure sleep, and is therefore permissible; but the systematic administration of any of these drugs depresses the heart and impairs the resistance to the debilitating effects of the disease—possibly, indeed, interferes with the cycle of processes by which the crisis is reached.

In the conduct of a case the line of treatment must be determined by the antecedent condition of the patient, and by the front he presents to the attack; and the attention of the medical man must be directed mainly to the early recognition of any functional derangement or complication, or any indication of failing power.

Precise directions as to food would here be out of place. The nourishment will, of course, be liquid and adjusted to the digestive capacity and general condition of the patient, any idiosyncrasy being respected.

Stimulants are rarely necessary, but often useful. The rule should be to reserve them till they are indicated by a frequent, small, short, and weak or faltering pulse, a dry tongue, restlessness, or delirium. If the patient sleeps after a little brandy or champagne, or if the pulse becomes less frequent and larger, it has done good. In some exceptional cases a considerable amount of brandy may be required, perhaps ten to twelve ounces of spirit in the twenty-four hours, and sometimes brandy given in champagne seems to have a better effect than either alone.

When sleeplessness is persistent and distressing there need be no hesitation in giving morphine hypodermically, beginning with a small dose. Morphine is all the more useful if there is delirium.

In a large proportion of cases it cannot be said that the regular administration of medicine of any kind is necessary, but it is usually a comfort to the patient and friends to have the feeling that something is being done. Simple salines, acetate or citrate of ammonium, and citrate of potassium allay thirst and exercise some influence on the cough. They are more refreshing when in the form of an effervescing mixture. Carbonate of ammonium may be added when indicated by a flagging pulse, or one or two grains of quinine may be given in the form of a tablet or pill or dissolved in the acid of the effervescing mixture.

Strychnine is often of very definite service when the cardiovascular system is manifesting an asthenic tendency. It is best given hypodermically, in doses of one-sixtieth to one-fortieth grain, at intervals of from twelve to four or three hours, and it is important to note that it may be required early.

Digitalis has been elevated almost to the level of a specific in the treatment of pneumonia, and it may be extremely useful on occasion, especially as digitalin, with strychnine hypodermically; but given at all periods of the disease, and in large doses, it is of very doubtful value.

The inhalation of oxygen is attended with striking, but usually fugitive, apparent benefit when there is lividity of the countenance and blueness of the lips, and it is possible that it may, with strychnine and stimulants, carry a patient through a very dangerous phase of an attack.

Dr. Lees advocates the application of an ice-bag to the chest over the affected lung, and external cold has been found to relieve the pain of the associated pleurisy, and is often said by the patient to be grateful. Cases have been published in which the ice-bag has seemed to shorten the attack; but, for reasons already given, nothing can be more difficult than to form a definite opinion on this point, and it is not easy to see how the course of the disease, of which the inflammation of the lung is a local expression, can be so influenced. A large body

of statistics would be needed to establish the beneficial effects.

Poultices were until recently almost universally applied, the first one or two usually containing mustard so as to redden the skin. The practice has its justification in the relief of pleuritic pain and of the cough, but a large jacket poultice constantly applied soon becomes oppressive, and when changed every three hours it is a cause of fatigue and distressing exhaustion. All that is valuable in the use of poultices may be retained without the disadvantages attending their too assiduous employment by the application of one for three hours twice in the twenty-four hours.

Legends are still in circulation of life having been saved in pneumonia by a gigantic blister, and it is still possible that the medical attendant may be pressed to apply a blister.

Venesection has rightly been banished from the treatment of pneumonia, but in one particular complication, very rarely met with, it may be of the greatest service. This is when early in the attack the invasion of the lung is so rapid that the right ventricle is unable to cope with the sudden resistance in the pulmonary circulation, and is paralyzed by overdistention. The patient will be cyanosed, unable to speak, and scarcely able to breathe or cough; he will be sitting up in bed with his legs over the edge unless prevented, supporting himself on his hands, the veins of the neck and temples turgid, the eyes staring, the expression agonized, and beads of sweat standing on the face and forehead. The pulse will be small and short, probably scarcely preceptible, while the heart will be found beating violently. It is scarcely possible to define the heart by percussion, but the right cavities are enormously distended, and the contrast between the cardiac impulse and the pulse shows that the blood is dammed back in the lungs so that it reaches the left ventricle in very inadequate amount. Under such circumstances the relief by bleeding is most striking. The pulse improves as the blood flows, the breathing is relieved, and when sixteen to twenty ounces has been withdrawn all the distressing symptoms will have disappeared.

The same results are not to be expected later, when asthenia has become a prominent feature in the symptoms, although, of course, there is a dilatation of the right heart.

It has already been stated that delirium is common in the course of pneumonia. It usually subsides at the crisis, especially when with this there is a long, quiet sleep. But it may persist and become more violent, or violent delirium may set in after the crisis. It is probably of toxic origin, the source of which may be the exudate absorbed into the blood, or it has been attributed to asthenia. The remedial measures are nourishment and stimulants, with strychnine and digitalin hypodermically.

EFFECTS OF BORAX AND BORIC ACID ON THE HUMAN SYSTEM.

We have received from Professor OSCAR LIEBREICH, of Berlin, a monograph on this subject, in which he reaches the following conclusions:

Boric acid, even in a five-per-cent solution, causes no change either in the stomach or intestine. Boric acid exercises no injurious action whatever on the gastrointestinal epithelium. Borax has a more powerful action. Up to one-half-per-cent solution, indeed, the gastric condition remains normal; a one-per-cent solution causes very slight changes, the free surface of the cells is affected—*i.e.*, they become translucent, as may be observed in microscopic preparations when an alkali is added; the mucous secretion is slightly increased, and there is an extremely small disintegration of epithelia. These cell phenomena, however, are of no biological importance, as they could only be detected after the minutest examination. Not until the solution reaches a two-per-cent strength and upwards does a distinct increase of mucous secretion take place, together with the first disintegration of epithelial cells—*i.e.*, a deleterious effect. The intestinal effect is milder; here, too, the cells become translucent, but only distinctly so when a three-per-cent solution is reached. There is no disintegration of epithelia under a five-per-cent solution.

In order to judge the effect of borax fairly, other chemical substances occasionally introduced into the system should be drawn into the experiment. If we compare the observations we find, what is not surprising, that the prominent effect of borax is that of an alkali. This is clearly shown by the soda experiments. Even so weak a solution as one per cent of soda has an injurious effect on the gastric mucous membrane, for we observe that not only are the cells rendered translucent, as in the case of borax, but cells begin to be disintegrated. Under a three-per-cent solution dilatation of the blood

capillaries under the mucous membrane sets in, a phenomenon which is not observed in the application of borax.

On the intestine the action of soda is considerably more powerful than that of borax. At one-per-cent solution the deleterious action commences, cells in large quantity being disintegrated, whereas a one-per-cent borax solution leaves the intestine intact. In the case of saltpeter, the injurious effect on the stomach—and on the intestinal membrane too—begins at the one half-per-cent solution. It is worthy of note that even common salt in a five-per-cent solution exercises an inflammatory action on the gastro-intestinal mucous membrane. Here, too, we have the proof that no other effect than an alkaline one can be ascribed to borax, and that it has no specific injurious action of its own.

For the practical purposes of alimentation such strong solutions of borax and boric acid do not come in question; but even if such should be taken, the intestinal contents would be so much diluted by the gastro-intestinal juice, by the flow of gastric juice, bile, and intestinal secretion, that the concentration would fall far below the limit of value.

Brouardel has very justly pointed out that even small doses of chemical substances, if taken in food continuously for a long period of time, may affect health. He particularly draws attention to salicylic acid as being injurious in cases of weak or diseased kidneys by its accumulation in the system. This is not so with borax and boric acid. Weak and diseased kidneys bear borax and boric acid particularly well; in fact, they form remedies of great value in kidney diseases, as Virchow's own case shows. Moreover, in the animal experiments there was no trace of any disturbance in the function of the kidney, so that Brouardel's dictum on salicylic acid cannot hold good for borax and boric acid.

Animal experiments demonstrate further that borax is easily excreted from the system, and that no accumulation takes place. This is clearly shown by the following experiments: Two dogs, one weighing 8 kilos 640 grammes, and the other 8 kilos, were fed for five consecutive days—dog No. 1 with borax, and dog No. 2 with boric acid, the dose being 150 centigrammes daily, dissolved in 60 cubic centimeters water and mixed with the ordinary food. Thirty hours was allowed to elapse after the last dose; the animals were then killed, and their brain, spinal cord, blood, liver, and bone-marrow chemically examined for boric acid without the slightest trace being found. And in rabbits which had been fed for five consecutive days with daily doses of 100 centigrammes, and killed five days after the last dose, no remains of boric acid could be found.

On the other hand it has been pointed out that the method for the chemical quantitative analysis of boric acid is far from perfect. This must be conceded. But the quantities used in the preservation of food are so small that these analytical discrepancies are practically of no account. It has further been objected that the daily use of different kinds of borated foods might disagree with the system; but this objection would only be valid if borax and boric acid were drastic substances with a toxic effect on the organism. Should these substances therefore be discarded solely on the ground of these two unfounded objections, a great check would be given to the progress of national prosperity.

Severest criticism of medical observations and experience won from experimental research justify the conclusion that borax and boric acid are innocuous as preservatives of food; this assertion of course can only be valid within certain limits, a restriction however which applies to all victuals and drugs; for we know that medicines, admixtures to food, and even aliments, when taken injudiciously or in excess, cease to be wholesome and suddenly become injurious substances. And, moreover, if harm could be done by borax and boric acid used in the preservation of food, the immense quantities which have already been swallowed would have aroused the attention of medical men, particularly as boracic preservation is openly practiced (as may be seen by the butchers' trade journals), and has been unreluctantly accepted by the working classes.

For the preservation of meat boric acid is used in quantities of one-half to three-quarters per cent; of this a great part is lost in watering the meat, particularly in the smoking process for instance, so that we may estimate one-quarter per cent as the maximum amount which reaches the system. Experience has proved that 12 decigrammes (1.2 grammes) of boric acid or borax, if taken in food daily, even for a considerable time, does not affect health injuriously. Even quantities twice as large have not been proved injurious, scientific investigations

having decisively demonstrated that these doses are far below the limit where deleterious action commences.

Whoever studies the numerous experiments of different investigators with care will end in taking the view of certain authors, a view which has been mentioned above in this discussion, viz., that borax and boric acid, far from being injurious to the human system, are really wholesome substances. But a far greater number of observations will be required before this can be conclusively proved.

THE LOCAL USE OF FORMALIN IN THE TREATMENT OF ATROPHIC RHINITIS (OFTEN CALLED OZENA).

The *British Medical Journal* of October 14, 1899, contains an article by BRONNER upon this practical topic. He recognizes the fact that in late years much has been written on the pathology and treatment of atrophic rhinitis, but he does not enter into any controversy on these points, and only wishes to report a new remedy which in his hands has proved most useful in these cases. He refers to the so-called atrophic (or dry) non-fetid, and to atrophic (or dry) fetid, rhinitis.

The first indication in the treatment of atrophic rhinitis is to thoroughly cleanse the nares and remove the inspissated mucus and crusts. The second indication is to alter the nature of the secretion of the mucous membrane, and thus prevent the formation of the crusts. This can, he claims, be most satisfactorily achieved by formalin.

Bronner generally orders an alkaline lotion for removing the crusts, to be used with a Higginson's enema, and with as much force as possible without causing serious discomfort. If there are any patches of hypertrophy of the mucous membrane, they are removed by the galvanocautery or trichloracetic acid.

Innumerable sprays and insufflations have been recommended in the treatment of atrophic rhinitis. He has for some time used formol or formalin. In bad cases he prescribes a 1-in-1000 to 1-in-2000 solution of the liquid formalin with water, to be used with a small nasal syringe; or a 1-in-500 to 1-in-1000 solution, with a little glycerin added, to be used with a coarse spray three or four times a day for a few days, and then two or three days in the week for a few weeks or months. If the application is painful the solution should be diluted with water. Formalin has a most powerful action on the glandular tissues, but he believes that it acts directly on the cells of the glands. It is therefore important that the solution should not be too strong, or used for a very lengthy period of time.

Formalin has also a powerful deodorizing action. In cases of fetid atrophic rhinitis, or, as some call it, ozena, it is most useful in removing the disagreeable and penetrating smell. If it only did this and nothing else it would be a godsend to many a poor wretch.

In many cases of atrophic rhinitis the accessory nasal cavities are affected, particularly the maxillary antrum. Until these have been treated and cured, any local treatment of the nares must necessarily be futile.

The maxillary antrum or antra are probably affected in about twenty-five or thirty per cent of all cases of ozena.

In the after-treatment of atrophic rhinitis Bronner has recently tried insufflations of tannoform (a combination of tannin and formalin) with boric acid, and found it most useful.

In conclusion he asserts that atrophic rhinitis, fetid or non-fetid, has nothing whatever to do with syphilis.

In the discussion of Bronner's paper Mr. Cresswell Baber recommended a Higginson syringe for cleansing the nose, followed by a spray of mercury perchloride. He agreed with Dr. Bronner that empyema of the antrum was present in a certain proportion of cases of ozena, and that it was sometimes overlooked.

Dr. Jobson Horne considered formalin superior to mercury perchloride in diseases of the throat and nose, more especially in infectious cases such as diphtheria, in which it was important to prevent the patient from infecting others.

Dr. Pegler insisted upon the importance of thorough cleansing of the nose. He advised the mechanical removal of crusts by free douching with warm water injected through an Ingram syringe, before applying alkaline or other antiseptics; and he pointed out that directions for home treatment were often very loosely given and imperfectly carried out. He had not used formalin, being quite satisfied with Mandl's iodine solution, preferably that of medium strength.

Dr. Herbert Tilley (London) confirmed Dr. Pegler's remarks as to the importance of thorough cleansing of the nasal cavities, and recommended a strong rubber ball syringe of about three-ounce capacity, with several openings in the nozzle, made by Krohne & Sesemann. This should be washed at least

twice a day with an alkaline antiseptic wash. The clumsiest of patients could use this instrument, and he had never known otitis to follow its use.

Dr. Chevalier Jackson (Pittsburg, Pa.) had found a finely powdered preparation of carica papaya very effective in softening crusts, by virtue of its solvent action on dead animal tissues. It had no action whatever on living tissues. He removed the softened crusts next morning by mopping with hydrogen peroxide, and then douched with an alkaline solution.

Dr. Watson Williams (Bristol) had tried weak formalin solutions in ozena some years ago, but found that its action in removing fetor and dryness of the mucosa was very transitory, unless it were used strong enough to cause at least considerable discomfort. Equally good results could, he thought, be obtained with alkaline solutions containing carbolic acid or some non-irritating antiseptic. He had not observed any frequent association of true ozena with antral disease.

Dr. Kipp (New York) uttered a warning against the use of formalin in young children. He had seen symptoms of gastric irritation from the employment even of a weak spray. The dangers of douching in ozena were by no means imaginary, for he had seen many cases of otitis thus produced. A coarse spray of weak alkali, followed by Condy's fluid, had yielded him good results.

Dr. Bobone (San Remo) said he could not get his patients to persevere with formalin on account of the pain and irritation. He recommended nascent silver iodide applied with a cotton-wool brush. Refined petroleum was a good application after the crusts were removed.

Dr. Bronner, in reply, said that he preferred to use formalin as a weak spray, stopping short of strength that caused irritation. The risk of otitis was, he thought, much greater with the nasal douche, in which the pressure was continuous, than with any syringe in which it was intermittent. He had punctured the antrum from the lower meatus with Lichtwitz's trocar in cases in which he suspected empyema.

THE TREATMENT OF CARBOLIC ACID POISONING.

The *Southern California Practitioner* for November, 1899, in an article by Dr. M. H. MITCHELL, states the following conditions which are to be combated in this state:

1. A deadly poison is in the stomach, and it is being rapidly absorbed into the blood. How shall we treat this condition? Sulphocarbolates are harmless in the blood. Our first duty then is to give an ounce of magnesium or sodium sulphate. This will render the poison harmless. We should now proceed to wash out the stomach. It is also well to add Epsom salts to the lavage water.

2. Some of the poison which has not yet been neutralized is circulating in the blood. This causes a great depression in the brain centers and renders the vital organs weak and irregular. How shall we meet this condition? Use the hypodermic syringe freely. Give enough atropine to dilate the pupils and assist respiration; enough strychnine, ether, and brandy to sustain the heart and assist it to pump the vital fluid to the three great medullary centers, which hold the life of the patient in their tender grasp. Also wrap the patient in hot blankets and raise the foot of the bed.

3. The poison in the blood must be eliminated quickly, before it paralyzes the medullary centers. How shall we meet this condition? Some advise diluent drinks, but they are not of much use, as their action is too slow. Mitchell believes hypodermoclysis is the only rational way to meet this condition. Carbolic acid is chiefly eliminated by the kidneys, therefore we must depend upon this channel of exit. A pint of the saline solution introduced subcutaneously will immediately stimulate the renal cells to great activity and cause an abundant secretion of urine. If resorted to early, he has no doubt that hypodermoclysis is a potent agent to assist the elimination of poisons by way of the kidneys.

Thus, while Mitchell has no new or specific remedies, he has simply tried to emphasize the steps and outline the course to be followed, when sudden emergencies confront us.

NUCLEIN THERAPY IN TYPHOID FEVER.

Under this caption LATTA writes in the *Kansas City Medical Index* for November, 1899. He has used the following plan of treatment: As soon as he suspects typhoid fever, without waiting to clear up the diagnosis, if there is any difficulty in that line, he commences to give nuclein. He says, however, that no case is included in his list of those treated successfully unless the diagnosis was amply confirmed by the subsequent

course of the disease. All cases where the symptoms subsided inside of five days are excluded.

The usual dose of nuclein has been two tablets every three hours, varying, however, from one tablet to four tablets at a dose, as may be indicated by the effect produced. He usually gives the larger doses in the beginning, lessening the quantity after the system has responded to treatment. The patient is requested to abstain from all foods and other medicines for two hours. At the end of the first half-hour of this fasting period, four to six ounces or more of hot water is given, and thirty minutes later the dose of nuclein, and then one hour is allowed for absorption. In this way every three-hour interval is divided into two parts, the first two hours devoted to nuclein and hot water alone, the nuclein being given on an empty stomach at the middle of the interval; the last hour is devoted to feeding and whatever other treatment may be needed. In addition to the water given as stated, the patient is allowed water at all times, preferably hot, and is urged to drink it to the extent of a gallon or a gallon and a half each twenty-four hours. Many patients cannot be induced to drink so much, but the more nearly they approximate this amount the better. And this treatment, with nuclein and hot water, is kept up steadily during the whole course of the disease. Frequently during the first twenty-four hours no benefit may be perceived, the temperature and disturbing symptoms may increase—after that both will decline.

This is not an abortive treatment. Still, Latta thinks it is not unusual by this plan to have a patient by the eighth or tenth day of treatment, or even earlier, in a better condition than the old plans gave us at the end of the third week. It is not unusual to find the temperature going down at the rate of one degree a day, when under other management it would be going up in the same ratio. Nuclein and hot water reduce temperature, lessen nervousness, mitigate all the serious symptoms, sustain bodily strength, oxidize toxins and waste products, render them more freely soluble and furnish the vehicle for their more complete removal from the system, and strengthen the resistance of the cell structures of the body to disease. These statements may not all be proved by future clinical experience, but they are justified at the present time as furnishing the most rational explanation of what he has actually seen in the sick-room. Although this treatment in Latta's hands has produced unusually good results, modifying all the worst symptoms, keeping the patient in better general condition and more cheerful attitude of mind than any treatment he has heretofore used, still it is not an abortive treatment. Latta cannot see that his patients saved much time by this method, if we except the lessened prostration and the somewhat prompter convalescence. They usually took the whole three weeks to pull through. None went beyond that time, however, except one case, where a relapse was brought on by eating indiscreetly after the case had been dismissed nearly a week. Another case had on the fifth day of the disease and first day of treatment an evening temperature of 105½°, the next evening 106½°, and all the other symptoms indicated an attack of unusual severity. After the first twenty-four hours the temperature declined about one degree a day until it reached 102°, remaining at that point for several days, then slowly going lower. All the other bad symptoms subsided in an equal ratio. After the twelfth day this patient seemed hardly worse off than a man suffering from an indigestion, yet he had a pretty sharp hemorrhage near the middle of the third week. This case may be regarded as furnishing striking evidence that nuclein does not "abort" typhoid, since, notwithstanding the marked modification of symptoms, it did not prevent ulceration and resulting hemorrhage. No other bad symptoms occurred. Recovery was prompt. This was the only hemorrhage in twenty-six cases.

Latta's good opinion of nuclein in typhoid has been shared by his patients and others. It was not uncommon for those who had seen or nursed typhoid patients before to express their surprise that any treatment could so soften down and modify the bad features of the disease. If Latta were to go back over his whole professional life and select the two remedies that have called forth from his patients the warmest expressions of appreciation and gratitude, he thinks he would select chloroform in labor and nuclein in typhoid fever.

He thinks a temperature of anything less than 104° F. is not detrimental to the patient, and in fact is one of nature's methods of combating disease. Consequently he no longer wages any particular warfare against fever unless it goes above that point, and under the nuclein treatment in his hands the temperature has seldom gone above that point after the first twenty-

four hours. In cases where an antipyretic is needed, he would use cold applications. Quinine, coal-tar derivatives, and alcohol he has almost entirely discarded. These remedies are, notwithstanding the clinical evidence in their favor, under serious suspicion. Careful laboratory experiments by competent men seem to prove that all these, when given to animals, lessen their resistance to infection. The well known action of quinine on the leucocytes alone might seem a sufficient bar to its use, and he is satisfied that antipyrin, acetanilid, and guaiacol have no place in typhoid treatment.

Latta feeds typhoid patients freely. In these cases the cell structures of the whole body are to be sustained and strengthened. For this purpose nuclein is the best remedy, but good food and plenty of it is just as necessary. No unusual rules of feeding are needed, except that food must be given during one hour, the other two hours being devoted to nuclein and hot water. In kinds of food he follows in the main the instructions of the text-books, except that he feeds more freely than most of them recommend, and since using nuclein it seems to him that he has been able to feed more freely and with less risk than he did before.

It is tolerably evident that the use of serums, antitoxins, and animal extracts is rapidly increasing in medicine. In the absence of accurate chemical knowledge as to the composition of these products, it is not out of place, perhaps, to note the possibility that nuclein may be an important constituent—the important constituent, perhaps—of them all.

THE DIAGNOSIS AND TREATMENT OF TYPHOID FEVER.

In his address before the New York State Medical Association at its last meeting OSLER stated that two clinical rules should guide practitioners above Mason and Dixon's line. These are:

1. An intermittent fever which resists quinine is not of malarial origin. Infection with the tertian organism, producing quotidian or tertian paroxysms, is the only variety of malarial fever prevalent in the northern and middle States. This form of the parasite is peculiarly susceptible to the action of quinine, and even a grain or two daily may suffice to clear the blood within forty-eight hours. The constancy and the infallibility of the action of this drug is one of the most remarkable phenomena in medicine. Our clinical charts of simple intermittents, now numbering many hundreds, may be searched through and through without finding an instance in which the paroxysms were not checked by the use of quinine, and usually within thirty-six or forty-eight hours.

2. In these localities a continued fever is not due to malarial infection. He speaks now of the regions named, in which the estivo-autumnal organism and the graver forms of the disease caused by it are very rare. For remarkable complexity in the clinical manifestations, for variability in mode of onset, in the course, and in the symptoms, the estivo-autumnal infection takes precedence even of typhoid fever. With a vigilance quickened by repeated surprises, we are yearly made to feel the subtleness of this protozoan Proteus, which rivals "the old sea-tell-truth" of Homer's tale in clinical wiles and sleights.

So exceptional are cases of a continuous fever with tertian infection that they need not be considered, but the estivo-autumnal fever may simulate typhoid very closely. Osler does not give any detailed account of the differentiations, which are fully described in recent works, but dwells on one or two points alone. The fever in malaria is marked by remissions from the outset—hence the term remittent fever—of a grade rarely seen in typhoid until the late stages. Once the fastigium is reached, the fever in the latter presents a remarkable steadiness; the two-hour record may show for several days a variation of not more than a degree. The chart has a "Pennsylvania-Railway-like" directness, in marked distinction to the zigzag "Baltimore-and-Ohio-Railway" chart of estivo-autumnal fever. The early anemia, with sallow complexion, often suggests the diagnosis, even when other symptoms are like those of typhoid fever.

It is in these cases that we find the enormous diagnostic value of Laveran's discovery. Unfortunately, the parasite of the estivo-autumnal fevers is less easily recognized in the acute stages than the larger tertian form, and, moreover, it may be very scanty in the circulating blood. To become an expert in the examination of the malarial parasites requires a long and tedious apprenticeship, and there have been illustrated papers published in this country which make one wonder not less at the brazen audacity of the authors than at the gross ignorance of the editors of the journals. Osler urges most strongly, particularly upon the young house physician

beginning the study, in all doubtful cases to keep well made cover-slip preparations, which can be identified later by proper methods of staining. The recognition of an estivo-autumnal infection of a week or ten days' duration is an easy matter from the presence of ovoids and crescents. Unlike the simple intermittents, the malarial continued fever is more resistant to quinine, and three or four days may elapse before the temperature falls, and the organisms do not disappear from the blood so promptly; indeed, the crescents and ovoids are remarkably resistant in comparison with the tertian form.

Combined infection with the typhoid and malarial germs is exceedingly rare; so rare, indeed, that only a single instance has been met with in the Johns Hopkins Hospital in ten years among nearly one thousand cases of typhoid. When it does occur, quinine readily settles the malarial side of the infection, while the typhoid fever pursues its usual course. It is to be hoped that the pernicious term typhomalarial fever has been forever banished from our nomenclature. Sheltered under it, a fancied sense of security has too often ended in a sad calamity, either to the patient or, in the absence of proper sanitary precautions, to the community.

But after all, in any discussion on typhoid fever the appeal must be made to the hard-worked practitioners of the smaller towns and country districts (in which the disease is now most prevalent), who find it very hard, in the conditions of their lives, to take advantage of modern scientific methods of diagnosis. They must rely in great measure on experience and common sense, and to them Osler would say in conclusion: Learn to suspect typhoid fever, and not malaria, particularly if it resists the action of quinine. For too long we have employed the Anglo-Saxon method of procedure, and in a given case have assumed innocence of anything so serious as typhoid until in the onset of some serious symptom the guilt was only too evident! It is high time now that we adopt the Gallic usage, and regard every case of typhoid fever as guilty, that is as a typhoid, until the contrary be clearly demonstrated.

Two recent works should be on the library table of every physician at this season of the year — Keen's Surgical Complications and Hare's Medical Complications of Typhoid Fever. They will stimulate that personal progressive education which all of us should seek — an education which carries with it, year by year, as experience widens, not alone a better knowledge of the clinical intricacies, but an ever-ripening wisdom which enables us to be more and more helpful to the pitiable victims of this disease.

THE NON-OPERATIVE TREATMENT OF UTERINE CANCER.

LUTAUD (Consultations sur les Maladies des Femmes) says that under these circumstances there are four chief indications: first, to aid in the throwing off of the morbid products; secondly, to combat the fetor and promote asepsis; thirdly, to arrest hemorrhage; fourthly, to relieve pain and support the vital forces.

For the removal of the gangrenous products, which favor autoinfection, we may employ curetting or caustics, but the curette is much preferable to the latter. The Sims speculum is introduced and the morbid tissues are carefully scraped away. Should the body of the uterus be involved, it is well to introduce into it small compresses which have been saturated with ethereal solution of iodoform. This is allowed to remain in place for twenty-four hours. Gradually by this means fetor is decreased and dilatation of the cervix is obtained, whereby the discharge may freely pass from the fundus.

If it is decided to employ caustics, chloride of zinc is that of preference. It is applied by saturating small tampons with a solution of it. The formula is as follows:

> Chloride of zinc, ½ ounce.
> Distilled water, 1 ounce.

These tampons after being saturated should be squeezed out, then applied to the affected part. It is well to protect the normal tissues as much as possible from their action. This may be done in part by covering the walls of the vagina and the skin with the following ointment:

> Bicarbonate of sodium, 2½ drachms;
> Lard, 1½ ounces.

Sometimes after applying the compress wet with the zinc to the surface, the entire vaginal cavity should be filled with compresses wet with a saturated solution of bicarbonate of sodium. The tamponing is maintained for forty-eight hours, after which the vagina is flushed out with corrosive sublimate solution of the strength of one to ten thousand. Chloride of zinc has been employed, injected directly into the cancerous growth in a solution of one to five. Others have obtained

good results from injections of absolute alcohol directly into the affected parts. These injections are repeated each day until five or six have been given; they are said to be particularly useful in cancer of the neck of the uterus.

It is always necessary to maintain strict asepsis of the uterine cavity and vagina if possible. Among the injections which may be employed are the following:

Permanganate of potassium, 1-to-5000;
Resorcin, 1 ounce;
Water, 1 quart.

These injections should be applied after a speculum has been introduced, and they should be directed in such a way that they are thrown against the morbid growth and wash away its products. After the injection has been made, a useful application for its antiseptic and pain-relieving properties is the following mixture, which should be applied by means of a cotton tampon:

Chloral, 30 grains;
Hydrate of cocaine, 8 grains;
Water, 1 ounce.

Where the cavity of the uterus is involved, a bougie of iodoform, made as follows, may be inserted into the uterine cavity:

Iodoform, 2 grains;
Hydrochlorate of cocaine, 1 grain;
Cacao butter, 8 grains.

To be made into a narrow bougie.

Where a powder is desired, the following may be used:

Iodoform,
Powdered charcoal, āā 1 ounce;
Sulphate of quinine, 30 grains;
Oil of peppermint, 15 drops.

This powder is dusted over the neck of the uterus and maintained in place by a tampon of iodoform gauze, which should be renewed every twenty-four or forty-eight hours. For the purpose of combating hemorrhage, cauterization may be employed, and the following pill may be given internally:

Ergotin, 30 grains;
Powdered digitalis,
Extract of hyoscyamus, āā 4 grains.

Make into 20 pills and give four to six a day.

For the purpose of relieving the pain morphine may be administered, or the following suppository may be introduced into the vagina or rectum:

Extract of belladonna, ¼ grain;
Extract of opium, ¼ grain;
Cacao butter, 45 grains.

Make into one suppository.

The following prescription has a reputation for the purpose of combating the cancerous diathesis, but it is doubtful if it exercises any real benefit:

Tincture of thuja, 1 drachm;
Fowler's solution, 30 minims;
Syrup of acacia, 1 ounce;
Water, 2 ounces.

A small teaspoonful once or twice a day.

EXPERIMENTAL AND CLINICAL REPORTS UPON SCOPOLAMINE (HYOSCINE).

WINDSCHEID has performed a number of experiments upon frogs, rabbits, cats, and dogs with scopolamine, the active principle of scopolia, with the formula $C_{17}H_{21}NO_4$—an alkaloid apparently identical with hyoscine. The results of his experiments showed that upon cold-blooded animals it acted in weak doses to increase the rapidity of respiration, and in large doses to decrease it. Still larger doses had a narcotic effect and produced paralysis, but death did not result. In rabbits there was dilatation of the pupil and increased rapidity of respiration. Upon cats and dogs its chief action was upon the motor system. It produced paresis and some ataxia. With very large doses dogs showed curious imperative movements. No effect was noticed upon the respiration in cats, and in dogs the results were contradictory. No case of death occurred. Upon the frog's heart that had been paralyzed with muscarine it produced a renewal of the pulsations. It was found in the urine of cats and rabbits to which it had been administered.

Therapeutically it has been used in whooping-cough and asthma with good results, in epilepsy with doubtful results. Its chief service has been in insanity, on account of its hypnotic effect. Erb has suggested its employment in various forms of tremors. Fränzel employs it for the night sweats in phthisis. Clousen has recommended its use in asthma. Its mydriatic qualities lead to its employment in ophthalmoscopy. Occasionally unpleasant results are produced, as in a patient of Windscheid, 0.0002 producing severe collapse and loss of consciousness for an hour. The initial dose, therefore, should not exceed 0.0001. In paralysis agitans, in the treatment of lead palsy, senile tremor, and multiple sclerosis, and in idiopathic or essential tremors, the drug is apparently of considerable value. Windscheid also employs it to control hyperidrosis, when it should be given shortly before retiring. It appears to be very rapidly eliminated, and therefore does not cause fatal poisoning. — *Philadelphia Medical Journal*, Dec. 16, 1899.

THE TREATMENT OF ECZEMA OF THE GENITALS AND OF THE PERINEUM AND ANUS.

According to the *Journal de Médecine de Paris* of October 29, 1899, the following lotion may be employed for this purpose:

Menthol, 2 grains;
Hydrate of chloral, 1 drachm;
Glycerin and water, of each 1 pint.

The following powder may also be used after this lotion has been applied:

Salicylic acid, 15 grains;
Oxide of zinc, 1 drachm;
Powdered talc, 3 drachms.

A PRESCRIPTION FOR COLIC.

According to the *Journal de Médecine de Paris* of December 3, 1899, the following prescription is useful in this condition:

℞ Fluid extract of hydrastis,
Fluid extract of hamamelis,
Fluid extract of viburnum,
Tincture of piscidia erythrina, of each 2½ drachms;
Tincture of opium, 30 minims.

A drachm of this may be given in a tumbler of water when needed, and repeated three times in twenty-four hours.

THE ANTITOXIN TREATMENT OF DIPHTHERIA.

We have referred to this subject but very little during the past year, chiefly because the fundamental question regarding the efficacy of antitoxin in diphtheria has passed from the realm of discussion and uncertainty into that of certainty. The comparative silence of this and of other medical journals should not be misunderstood. It is due to the fact that the subject is so far settled that further discussion upon the mere question of efficacy is superfluous.

In a recent editorial the *Journal of the American Medical Association* calls particular attention to the fact that there is now but little diversity of opinion as to the utility of the antitoxin treatment of diphtheria among those who have had the largest experience, and are thus entitled to a hearing. There is, however, not an inconsiderable body of the profession who, for one reason or another, think the subject still surrounded by doubt, and thus refrain from using a therapeutic agent whose claim to confidence has been incontestably established by the results of extensive clinical experience.

To those who have not yet been convinced the editor o that journal commends for earnest consideration a masterly contribution to the literature of the antitoxin treatment of diphtheria by GOODALL in the *British Medical Journal* of January 28 and February 4, 1899, in which is presented a judicial analysis of the subject in all its varied aspects.

In the article referred to Dr. Goodall deals with very large numbers of cases and handles his statistics with great caution and good judgment. From whatever side approached, those statistics show results favorable to the treatment beyond any question. His study is not limited, however, to statistics, but he enters in detail upon the effects observed clinically. He refers to the skepticism of the profession when the treatment was first proposed, owing to the failure of the specifics which had previously been brought forward. But the terrible fatality of the disease, the stability of the experimental evidence upon which the new treatment was based, the openness with which the preparation of the serum was made known, and the weight attaching to the observations of one so eminent in science as Roux, compelled those who were concerned in the care of large numbers of diphtheria cases to give the method a thorough and unbiased trial. Now, at the end of more than four years, Dr. Goodall believes it can be asserted, without fear of contradiction, that all those who have employed the treatment in a sufficient number of cases have made up their minds regarding its value one way or the other, and that a large majority of these are agreed that all that was claimed for it has been fulfilled.

There are a few, it is true, who, even after more than casual trial, are of the opposite way of thinking. There is nothing strange in this. There is not a drug or a disease upon which differences of opinion do not exist, and absolute unanimity cannot be expected upon any such subject.

Besides these two classes, there is another consisting of those who are, so to speak, of no way of thinking at all. They have either had few or no cases to treat, or they have not been able to procure the remedy, or they have not really troubled themselves about the question, but have preferred to go on with methods of treatment ancient but inefficient. The latter group, it must be said, contains no small number of practitioners.

There is now no doubt in the minds of most competent observers that the original

claims made for the antitoxin treatment of diphtheria have been to a large extent verified. The treatment of to-day stands absolutely established as one of the most efficient means of combating disease in the hands of the profession.

Dr. Goodall very pertinently sums up his article in the following words: "The list of drugs in the Pharmacopœia is long. For all, it is claimed that they are of value in the treatment of one and the other of the ills to which our flesh is heir. Yet I do not think I exaggerate when I say that few of even the most useful have been subjected to the same fierce criticism as has the antitoxin of diphtheria, and still fewer have borne the ordeal as triumphantly."—*Archives of Pediatrics*, December, 1899.

THE PHYSIOLOGICAL ACTION OF DIPHTHERIA TOXIN.

While much attention has been paid to the effect of antitoxin in the treatment of diphtheria, we know little of the true physiological effect of the toxin of this disease. The *British Medical Journal* of November 4, 1899, has in it an article by BRODIE, in which he tells us that the object of the following experiments was to determine the more immediate effects of diphtheria toxin, and to find the causes of death when this happens within forty-eight hours after an injection. Throughout these experiments cats were the animals usually employed.

If, while the blood-pressure is being recorded, a broth solution of diphtheria toxin be injected into the central end of the external jugular vein a large and rapid fall in blood-pressure is produced, followed by a slower recovery to the normal height. An injection of broth in which the toxin has been destroyed causes a similar fall in pressure, but a great difference is seen in the course of the recovery. With broth alone recovery is very rapid, and if the injection be repeated a few times a condition of tolerance is soon brought about and the broth no longer causes any marked effect. With toxin broth, however, the effect is very different; recovery of blood-pressure is always much slower and, if the dose be repeated several times, may become extremely prolonged, in some cases to as much as half an hour. Though later injections of the toxin do not produce so great a fall, this is much more marked than when the broth alone is injected.

This result shows that the toxin had affected either the heart or the blood-vessels, and the next series of experiments were designed to investigate this point.

In perfusion experiments upon the frog's heart and the mammalian heart it was found that the force and regularity of the beat were practically unaffected, even if the experiments were continued for eight to ten hours. Later experiments, in fact, showed that the heart gave no signs of being affected until the toxin had acted upon it for at least twenty-four hours, and then it suddenly showed a loss of regularity in rhythm and force, which was soon followed by complete cessation of beat.

The cause of the late recovery of blood-pressure observed during the first experiments was therefore to be sought for in the state of the blood-vessels rather than in the heart. The experiments which best showed that the blood-vessels were affected were some in which the animal was asphyxiated after toxin had been injected. In these cases no rise in pressure occurred, no Traube-Hering waves were present, and the pressure began to fall very early. The whole course of asphyxia was very rapid, often only lasting one-quarter of the time usually taken by a similar experiment in an uninjected animal.

It was very noticeable throughout these experiments that even if, as in some cases, they had lasted ten or eleven hours and large doses had been injected, the blood-pressure was well maintained and there was no sign of impending death.

In order to study the state of the vascular system shortly before death, an animal was injected with a dose sufficient to kill in about thirty-six hours, and towards the end of that period was anesthetized and its blood-pressure recorded. As a rule it was found to be at nearly a normal height, the only difference to be observed consisting in a few irregularities recurring pretty frequently upon the tracing. In those cases in which the animal died whilst the pressure was being recorded the pressure was found to fall very rapidly, death usually following about ten to fifteen minutes after the first sign of a fall in pressure had commenced. This fall, again, was due to relaxation of the blood-vessels, and the heart continued beating strongly to the end. It was found possible, moreover, to keep the heart beating for some time longer if it was perfused with warm defibrinated blood, though after a time—usually about one or two hours—it became irregular and

finally ceased to beat. Thus, in all cases observed, the blood-vessels failed before any appreciable change in the heart's action could be detected.

Another very striking point in all these experiments was that up to quite a short time before death both the vessels and the heart were apparently in nearly a normal condition, and that the first signs of failure were very rapidly followed by complete paralysis and death.

From these and other confirmatory experiments it is shown that the chief cause of death following within forty-eight hours of an injection is due to a failure of the blood-vessels and consequent fall of blood-pressure. Whether the failure is due to the action of the toxin on the muscular walls of the arteries or on the nerve centers or nerves is at present not decided; though, so far as they go, the experiments show that the first is the true explanation. The action on the blood-vessels is further indicated by the rapid fall in temperature which is observed to take place during the few hours preceding the death of the animal.

Another organ whose reaction to the toxin was studied was the spleen. The method consisted in enclosing the spleen in an air oncometer, and recording its change in volume by a tambour. If while the normal spleen record was thus being obtained a dose of toxin was injected, very characteristic contractions of the spleen were obtained. The first effect was a great increase in the extent of the usual splenic contractions, which was soon followed by a marked tonic contraction of the spleen lasting for about two minutes, and then succeeded by a gradual and persistent relaxation, the splenic curve often recording some two inches above the mean level of the first part of the tracing.

If a similar experiment were performed upon an animal which had been injected with toxin some twenty-four hours previously, a different condition was observed. The spleen was always considerably engorged, of a dark purple color, and softer to the touch. The volume record of such a spleen showed the cardiac and respiratory waves, but the waves of splenic contraction were poorly marked or even altogether absent. If now a dose of toxin were injected, the reaction of the spleen was very slight, and in some cases quite absent. The difference depended upon the time after the injection at which the record was commenced, for the later this was taken the less the spleen reacted. In one experiment in which the spleen volume was recorded for ten hours following the injection of a lethal dose the gradual disappearance of the large splenic waves was observed, and at the end of that time the tracing simply showed small cardiac and respiratory waves. Here again the action of the toxin upon the spleen seemed to be chiefly restricted to an action upon its muscular tissue.

THE CONSTITUTIONAL TREATMENT OF SKIN DISEASES.

WILD writes in the *British Medical Journal* of November 4, 1899, that of the drugs used for their action upon the skin arsenic still remains one of the most powerful weapons at our disposal. It is chiefly in chronic inflammatory diseases of the skin that its use is indicated, but some acute conditions, such as pemphigus, respond quickly to its action. In acute eczema, in the early stages of a spreading psoriasis, and in the more acute forms of lichen ruber planus, even small doses of arsenic frequently increase the intensity of the inflammation or hasten the spread of the eruption.

He does not propose to enter upon any of the theories regarding the mode of action of arsenic. It is notoriously an uncertain drug, and from a large experience of its use he has been led to the conclusion that the patient is a more important factor than the particular form of disease from which he suffers. Some patients respond to arsenic at once, and the skin rapidly clears up, no matter whether the disease is psoriasis, chronic eczema, lichen planus, or pemphigus; other patients suffering from identical forms of disease may be saturated with the drug to the extent of producing physiological symptoms without any effect upon the disease, which may even spread under the treatment; while a third class of patients cannot take even small doses of arsenic in any form.

As a rule young patients respond to arsenic better than old ones, and it is Wild's impression that of adults thin, dark-complexioned patients respond better than stout, fair-skinned people. In malignant disease of the skin, epithelioma, and rodent ulcer, and in sarcoma, he has used arsenic largely, both hypodermically and by the mouth, but has unfortunately not seen any beneficial effects upon the disease. In none of these cases has he observed any increased pigmentation, keratosis, herpes zoster, or neuritis, though some of them took the drug for months. In

some cases of lupus vulgaris, lupus erythematosus, and chronic acne a course of arsenic is often followed by improvement.

Tartrate of antimony in doses of five to fifteen minims of the wine is distinctly useful in acute and extensive inflammatory conditions of the skin. Added to a mixture containing one drachm of magnesium sulphate in each dose, and given every three or four hours, a rapid and marked improvement is often produced.

Sulphur and the sulphide of calcium are of great value in many cases of seborrheic dermatitis and psoriasis, especially in the subacute forms. In acne and acne rosacea, furunculosis, and chronic suppurative folliculitis, either sulphur in the form of lozenges or the calcium sulphide has a controlling influence upon suppurative process. Calcium sulphide, to be of use, must be fresh and given in sufficient doses—one grain three times a day, and not one-tenth or one-quarter of a grain as often given. In order to produce improvement the dose of sulphur or calcium sulphide ought to be sufficient to cause signs of H_2S in the alimentary canal and in the breath, and to many patients this is worse than the disease.

The value of sulphur in many common forms of skin disease is well known to the laity, and Wild believes the professional disrepute into which it has fallen is partly due to the fact that it is often used by the patient before professional advice is sought—that the cases seen by the doctor are selected cases, as it were, in which sulphur has failed to cure.

Ichthyol internally has been a very disappointing remedy in his hands. He may perhaps have been unfortunate in his choice of cases, but he cannot record any marked benefit from it in such diseases as acne rosacea, urticaria, and lupus erythematosus, for which it has been so largely extolled.

Mercury, apart from its use in syphilis, is certainly of value as an alterative. With the addition of antimony in the form of "Plummer's pill," Wild has found considerable benefit in cases of continually relapsing subacute eczema, some of which are the most obstinate and annoying cases we have to treat. In the form of gray powder or calomel, in small doses, it is useful in the facial eczema of children. Donovan's solution is particularly valuable in some cases of psoriasis and lichen planus, as well as in the late secondary and early tertiary syphilides. It is possible that the Donovan's solution owes its efficacy to the larger dose of mercury, for it must be noted that while the ordinary dose of the red iodide of mercury is $\frac{1}{32}$ to $\frac{1}{16}$ grain, 20 minims of Donovan's solution, by no means an unusually large dose, contains nearly one fifth grain of the same salt.

Iodide of potassium is another drug of value in other conditions besides syphilis. In scrofulous ulceration, and sometimes in lupus vulgaris, there is marked improvement. In those cases of psoriasis where arsenic cannot be tolerated it is occasionally of use. Sometimes potassium iodide will relieve a general pruritus, but more often it fails. It is, however, worthy of trial in those senile cases which so often baffle all therapeutic measures.

Salicylate of sodium and salicin are frequently of use, especially in the skin diseases supposed to be connected with a rheumatic diathesis, such as erythema nodosum, erythema multiforme, and peliosis rheumatica. The more acute varieties of psoriasis, especially the acute exacerbations which sometimes occur during the course of the chronic disease, are generally relieved by the salicylates.

Phosphorus, whatever its value as a nerve tonic, has proved of little use in such cases as chronic eczema, psoriasis, lichen planus, or malignant disease. The author has chiefly administered it as a fresh, carefully made, ethereal tincture, according to the B. P. C. formula, and sooner or later eructations of phosphureted hydrogen were produced. When given in pills this evidence of the unoxidized condition of the phosphorus is often wanting, and Wild is inclined to consider the majority of the phosphorus pills sold to be inert.

Creosote and guaiacol internally are frequently of value in cases of extensive lupus vulgaris, scrofuloderma, and even in lupus erythematosus. The dose may be gradually increased until the patient takes 20 to 30 minims per day.

Quinine, apart from its use as a general tonic, is also useful in chronic urticaria, lichen planus, dermatitis herpetiformis, some of the erythemata, and certain forms of eczema. Occasionally, it relieves general pruritus.

Calcium chloride, though valuable as a hemostatic, has in cases of urticaria, purpura, and hemophilia proved a disappointing remedy, and in Wild's practice has not fulfilled the expectations raised by Professor Wright's valuable researches.

Ergot, on the whole, is of less value than we should expect from its power of contracting blood-vessels. It is sometimes useful in the type of rosacea frequently found at the menopause.

Atropine and picrotoxin are both of value to check excessive sweating. In several cases a single hypodermic injection of one-hundredth of a grain of picrotoxin has diminished the perspiration for five or six days. From its action on the peripheral vessels atropine and the drugs containing it are sometimes useful in the various vasoneuroses.

Thyroid gland, apart from myxedema and cretinism, has proved an uncertain remedy. Some cases of lupus and a few cases of psoriasis have improved greatly while taking the drug; others showed no success. In xeroderma and ichthyosis he has obtained no benefit. In cases of malignant disease he has administered it largely without any encouraging results, but has found that the patients lost weight more rapidly under the drug, and trod the down-hill path with greater rapidity. In some of these cases, stopping the drug was followed by a gain in weight, even though the malignant growth was steadily progressing. Wild has therefore become extremely cautious in ordering thyroid preparations in cases of malignant growths lest harm should result in a disease of which progressive emaciation is so constant a feature.

Suprarenal gland, thymus gland, spleen, ovarian, and testicular extracts have been tried in a few cases without any beneficial effects, but as yet in an insufficient number of cases to warrant any conclusions being formed.

Apart from drugs, there are several therapeutic measures of a general nature which afford valuable means of treatment in severe skin diseases, and demand a short notice.

Rest in bed is one of the most useful means of treatment at our disposal in cases of severe inflammatory disease; alone it is often sufficient to determine a marked improvement in patients who have resisted all therapeutic measures while pursuing their wonted occupations. As an adjunct to other treatment it frequently materially shortens the duration of the disease.

Diet has less influence than rest; in some cases, however, it is of great value, but I have found that, apart from any dietetic idiosyncrasy in the patient, underfeeding or overfeeding produces more useful results in suitable cases than any qualitative changes alone. Of the qualitative changes in the diet the diminution or increase of the proteid constituents of food is the change of most value. Of course any indigestion requires the ordinary dietetic treatment, and the relief of this condition will frequently produce a beneficial result.

Finally, as a last resort, a change of climate and external environment will sometimes effect a cure, in obstinate cases of psoriasis, eczema, and urticaria, which have for years resisted the best directed therapeutic measures.

THE TREATMENT OF DIGITALIS POISONING: AN EXPERIMENTAL INVESTIGATION.

The *British Medical Journal* of November 4, 1899, contains a paper by TAYLOR and MARSHALL upon this topic. Their investigation arose from a research made by one of them on the antagonistic influence of digitalis and the members of the nitrite group. In this investigation it was found that nitroglycerin and sodium nitrite were able to counteract the influence of digitalis upon the circulation, but their effect was more transient than under normal conditions. The conclusion arrived at was that the antagonism of the two groups of substances was physiological rather than chemical—that is, they did not unite to form a physiologically inactive molecule, but each tried to produce its peculiar effect upon the cardiac and vascular tissues. As nitroglycerin caused the more easily induced paralysis the resultant of the combined action was always more or less vasodilatation.

Notwithstanding that the only true antidotes are those which chemically neutralize a poison, it seemed worth while, considering the power which nitroglycerin possesses of counteracting the circulatory effect of digitalis, to investigate its curative power in animals poisoned by this drug. Hitherto no useful antidote for acute digitalis poisoning has been found. Certain substances, it is true, have been suggested (serpentaria virginica by Adelmann, etc.), but none of these are of practical value. Furthermore, saponin, delphinine, muscarine, aconitine, which are known to remove the systolic standstill of the frog's heart produced by digitalis, owing to their markedly poisonous properties, could not be useful in treatment. Dobie certainly has described a case of digitalis poisoning which recovered after treatment

with aconite, but the value of the treatment in this case it is difficult to estimate. The only treatment of value, and this limited, according to experiment, is intravenous injection of salt solution, and the authors know of no case in which this has been tried. Nitroglycerin, besides possessing a greater antagonistic influence to digitalis than any other known drug, is also relatively non-toxic —that is to say, a lethal dose is probably many thousand times greater than a physiological one, so that in two ways it possesses an advantage over other drugs. The employment of this substance in severe cases of digitalis poisoning has already been suggested by Husemann, but he regards it as only of value during the period of vasoconstriction; in the absence of this condition he believes it will be of little use.

In practice, two forms of digitalis poisoning are met with—acute and chronic. The first is seen but seldom. It has arisen from the eating of digitalis leaves as a salad, but more frequently it arises from too large and repeated doses of digitalis given medicinally. The symptoms are mainly alimentary, circulatory, and nervous. The onset is comparatively slow. In slight cases there are headache, dizziness, nausea and vomiting, accompanied by epigastric pain and often colic and diarrhea, muscular weakness, slowing of the pulse, precordial oppression, and dyspnea. In severer cases the vomiting is protracted, there is severe colic and diarrhea, marked weakness, muscular tremors, even collapse, at first diminution and later irregularity and increased frequency and feebleness of the pulse, dyspnea, precordial pain, anuria, amblyopia, sleeplessness, often delirium and convulsions, followed by coma and death; or there may be complete consciousness, and death may occur from syncope, sometimes during apparent recovery. If recovery occurs it is prolonged, severe vomiting, slow pulse, and weakness usually existing for days. In the second or chronic form the symptoms result from the accumulation of the drug, owing to the too frequent administration of small doses. It is the form most frequently seen in practice. The symptoms are essentially similar to those of the more severe form, but in part they depend upon the preexisting disease. The more common are slowing of the pulse or increase in frequency and irregularity, dyspnea, diminution of urinary excretion, nausea, vomiting, sleeplessness, muscular weakness, and amblyopia.

The treatment of digitalis poisoning must therefore be symptomatic. We know of no antidote, in any true sense of the word, to this drug; nor do we think we shall ever know of one. Digitalis enters very slowly into the tissue metabolism; it produces distinct structural changes, and it is slowly eliminated. It therefore possesses the most unfortunate characters for the action of an antidote. Apparently all that we can do is to withdraw the drug if it is being given medicinally, to clear the alimentary canal of any digitalis it may contain, to increase the rapidity of elimination by diluents, to allay sickness, reduce arterial tension when high, procure sleep if necessary, and treat other symptoms as they arise. In other words the condition must be treated as if it were, which it is, an ill-understood disease. For the reduction of arterial tension nitroglycerin or an ally is the best remedy; but with a low blood-pressure, which is not infrequently present in digitalis poisoning, these substances are useless. In such cases small doses of alcohol, insufficient to produce vasodilatation, would probably prove of greater service.

THE TREATMENT OF HEADACHES.

In the *British Medical Journal* of November 4, 1899, HAIG discusses the relation of gout to headache. He believes that the treatment of the paroxysmal uric acid headache is the clearing of all available uric acid from the body and blood, and this is accomplished by:

1. Avoiding food or drinks which contain uric acid or xanthin.

2. Not taking more nitrogenous food than physiology requires.

3. Clearing out stores of uric acid from the body already in the body from neglect of 1 and 2.

The first means the avoidance of all animal foods except milk and cheese, and of certain vegetables rich in alkaloids, as tea, coffee, etc.

The second means the taking of enough albumen to produce from 3 to 3.5 grains of urea for each pound of body weight per day, but not more.

The third is generally sufficiently provided for by the change of diet, but occasionally it is necessary to give a course or courses of salicylates to aid elimination.

Any one thus completely altering his diet may expect a distinct diminution both of the frequency and severity of the headaches in a

few weeks, and that they will be reduced to one-tenth or one-twelfth of former number in twelve to eighteen months, which with a correspondingly large decrease in severity, amounts practically to a cure; but let him again take uric acid in any form and they will quickly return.

A DISCUSSION ON HEADACHES AND THEIR TREATMENT.

The *British Medical Journal* of November 4, 1899, contains an article by Dr. BRUNTON, in which after discussing the pathology and etiology of headache he proceeds to tell us that the first method of treatment in headache is of course to try to supply the brain with healthy blood, to clear away any toxins that may be present in it; and one method of doing this is the administration of a blue pill and a black draught. But more than this we may try to give something which may have the power of counteracting these toxins or of producing elimination from the liver, and he has found by personal experience that the easiest way of getting rid of the toxins or of counteracting their effect, he does not know which, is to keep up the action of salicylic acid or salicylate of soda. So that in persons who are liable to headache he generally prescribes salicylate of soda, 15, 20, or 30 grains at night, with 10, 20, or 30 grains of bromide of potassium. This mixture acts better than either salicylate of soda or bromide of potassium alone, and it will usually prevent the occurrence of a headache in the morning. If, however, the headache should still come on, he recommends that the dose should be repeated, and in the case of people who may suffer from very violent and often recurring headaches he gives them the salicylate of soda not merely morning and night, but three times a day in small doses, either immediately before or after meals. The salicylate of soda is apt to produce a certain feeling of depression and weakness, and in order to counteract this he generally gives it along with half a drachm of aromatic spirit of ammonia. Some of his patients have taken salicylate of soda for several years without any apparent harm, but we know theoretically that all these drugs allied to salicylate of soda have a tendency to produce anemia; and it may be advisable in some patients, if giving them the salicylate of soda regularly, to give also a little iron to counteract the effect of the salicylate in producing anemia.

There is another large class of drugs that are used for relieving headache. These ought always to be given before the headache becomes too severe, because when it is severe absorption from the stomach appears to be arrested, and many patients will tell us that the first dose they had of antipyrin acted like magic, but the next time they took it it had no effect whatever, and we can tell them the reason why. The first time they took it was before the headache had got very bad. It was therefore absorbed from their stomach and acted upon their nerve centers. The second time they waited too long, until the headache had got so bad that absorption ceased, and so the antipyrin was no more use to them in their stomach than in a bottle outside. Where we have to deal with headache it is always advisable to give the drug before the headache gets too bad. All these belong to the class of drugs which act upon the conducting fibers or cells in the cord and tend to disperse pain. Brunton cites the old story of the dirty Scotchwoman. A lady came in to see her one day and found the children walking and grubbing about, and she said to her, "Do you not often wash your house?" "No," said the woman. "But when the children come in with a lot of mud on their boots and they tramp all over the floor, what do you do?" "Oh, I make them knock it about until there is none." She distributed the mud equally all over the floor, and then she thought it was all right. Now, that is what these drugs do to the pain. Painful impressions do not pass to the cerebrum straight up as a rule, because pain is largely conducted up through the straight fibers which conduct tactile sensation. If we can distribute our sensation so much that it will get broken up in the cord and will not reach the center for pain in the brain, of course the patient will not feel pain, and so antipyrin, nux vomica, strychnine, phenacetine, antifebrin, and all that class of drugs, relieve pain with one exception, namely, if the pain be not too severe. If the irritation of the sensory nerve is so great that it will fill up the channels for pain, then phenacetine or antipyrin may sometimes make the pain worse than before. He did not believe this; he thought it was quite contrary to anything that could possibly be; but a patient of his told him that the antipyrin which he had prescribed to relieve headache made him very much worse. He thought he was mistaken, but he has no doubt he was quite right, and that the reason

was that the irritation was so intense, for it seemed to him that the pain had been increased tenfold by this drug.

But there is another drug that is very much used, and which has a somewhat similar action, but it acts apparently more upon the posterior columns than upon the central columns—at least so far as experiment goes—and that is caffeine. In cases where the pain is so intense that these substances instead of relieving it seem to make it worse, there is perhaps no drug to which we can have recourse except the subcutaneous injection of morphine, and that relieves the pain and gives the patient quiet for the time being. But of course there is always the difficulty of the morphine habit arising, and so we put off the use of this drug as long as we possibly can. In some cases where there is continued pain in the head lasting for a length of time, cannabis indica seems to help, and this may be given in the form of the extract or tincture, beginning with ten minims three times a day, gradually increasing the dose. One must be careful about cannabis indica. There is no danger in it, Brunton thinks, but we may greatly alarm the patient's friends if we run beyond 15 or 20 minims until the patient is accustomed to it. We may bring on a state of maniacal excitement which will greatly alarm the patient himself and everybody around him, but the long-continued use of this drug will sometimes relieve these headaches when other things seem to fail.

For the relief of headache occurring through inflammation of the periosteum from gouty, rheumatic, or syphilitic irritation, it is fortunate that one remedy is very useful—namely, iodide of potassium, which should be begun in small doses, and gradually increased up to 10, 20, or 30 grains, three times a day. Where we think that the pain is not of a pure nature, not due simply to dilatation of the nerve fibrils in the fibrous tissue of the periosteum, but is associated also with some change in the vessel of a nature allied to them, which we find in sick-headache, the iodide may be combined with bromide and salicylate, and in all these cases it is advisable to give some aromatic spirit of ammonia along with it in order to prevent any depressing effect of the drugs.

There is one thing more, and that is whenever we get a case of intense headache which drugs fail to relieve, we should look out for glaucoma. Even in ordinary headaches we will be very apt to find the affected eye is rather tight, that the intra-ocular tension is higher than usual; but in glaucoma it is very much increased, and this will be permanent, and not temporary as in ordinary sick-headache. In cases where this increased tension exists we must either treat the glaucoma ourselves or have the patient operated upon by some specialist so as to prevent the loss of an eye as well as to relieve the headache which is so intense, and which comes along with the disease.

THE TREATMENT OF GONORRHEA IN THE FEMALE.

The *Medical News* of November 18, 1899, contains an article by RAVOGLI in which he tells us that gonorrhea in the female, as in the male, must be treated in the locality where it has developed. The object of the treatment is to remove promptly and often the secretion from the mucous membranes and destroy the gonococci in the locality. The first aim is obtained by repeated and prolonged irrigations with antiseptic solutions; the second, by applications of remedies capable of causing a superficial necrosis of the epithelium, thereby reaching the gonococci which enter into the epithelial cells and find their way to the subepithelial layers of the mucous membrane. In regard to the first method, irrigations are made with solutions of bichloride of mercury 1 to 5000, or with permanganate of potassium 1 to 5000. These irrigations are easily applied to the external genitalia, to the vagina, and to the vaginal portion of the cervix. With an ordinary fountain syringe the woman can herself take the douches with one of these solutions twice a day. These will remove the mucopurulent secretion, will diminish the inflammation, but of course will not help the urethra nor the condition of the uterus. Every two or three days he inserts a bivalve speculum, and with a solution of permanganate of potassium 1 to 5000 thoroughly irrigates the vagina; then with small tampons of cotton the secretion from the cervix is carefully removed. When abundant discharge is flowing from the cervical canal he inserts a Talley or Haynes douche-tube into the cervix as far as the internal os, and with a mild stream of the same solution the cervical canal is washed. When symptoms of urethritis are present the urethra is also irrigated with the same permanganate solution. This is also done by means of a short recurrent catheter. He does not find it useful to fill up the female

bladder as in the male by the Janet method. The sphincter of the bladder in the female offers a great resistance to the passage of the fluid, and a forced injection into the urethra is accompanied by pain. The fluid is carried into the bladder only with difficulty. For this reason he prefers to introduce a recurrent catheter when he has to irrigate the female urethra and the bladder. Under ordinary circumstances he seldom makes use of irrigation to the cavity of the uterus unless the discharge is very profuse. Ordinarily he uses instillations with a one-per-cent solution of protargol.

The most effective antigonorrheal remedies so far known are ichthyol and the silver preparations. Ichthyol has a beneficial action, especially in cases of acute gonorrhea in the female, and in Ravogli's clinics every case of acute vaginitis and vulvitis easily yields to a few applications of tampons dipped in a preparation of ichthyol and glycerin, equal parts. In the subacute and chronic cases, however, the silver preparations are much more desirable. Nitrate of silver in substance, in a thin, flexible rod, so much used in past years to cauterize the cervical canal, has been nearly discarded in ordinary cases. He reserves this cauterization for cases in which granulations are to be destroyed. In the same way he uses strong solutions of the same salt only when the cervix shows excoriations with granulations. Protargol he has found so far to be the best antigonorrheal remedy, and since the time he introduced it in his clinic he has many times spared the patient a curettement of the uterus. Protargol has been used in from one- to three-per-cent solution as a urethral injection in cases of urethritis, as an injection into the ducts of the Bartholinian glands when affected, and especially in endocervicitis and endometritis. One of the instruments already referred to, the Talley or the Haynes douche-tube, has been introduced very gently into the cavity of the womb, care being taken to fill the tube with the fluid before introduction, otherwise some air is carried into the cavity. The instrument being in place, the fluid is pushed out of the syringe very slowly, drop by drop. He leaves the catheter in for a short time so as to give the fluid a chance to flow back. Without this precaution, if some of the fluid remains in the body of the uterus, the woman may suffer from cramps and uterine colic. After removing the catheter a tampon is introduced to maintain the fluid in contact with the cervix.

The instillation of protargol into the uterus causes only a sense of heat in the hypogastrium, which lasts about half an hour. From this treatment the results have been exceedingly gratifying. Five to ten applications have been sufficient to bring the womb to its normal condition. Protargol in the beginning increases the discharge, which gradually diminishes and is reduced to a thin crystalline mucus. As soon as the gonococci have disappeared from the secretion the instillations with protargol are discontinued, and the woman uses douches of a mild solution of permanganate of potassium or of biborate of sodium.

So far Ravogli cannot agree with Calmann on the superiority of formalin in this treatment, and he finds that protargol is safer and more effective in subacute and chronic cases of gonorrheal endometritis. During treatment it is of great importance to watch the menstrual periods. While the woman improves, her menses return to the normal condition and the accompanying pains gradually disappear, yet after the menstruation some mucous secretion passes from the uterus. This secretion must be carefully examined for the gonococci. If the gonorrheal germs still remain in the glands or in the folds of the mucous membrane of the uterus, with the presence of the blood, with the menstrual hyperemia, it seems that they take on more vitality, and are to be found again in the mucus. For this reason, before discharging a patient as cured, it is best to wait until her menstrual period occurs, and then to examine the secretion.

THE TREATMENT OF CERTAIN FORMS OF NEURALGIA BY THE INJECTION OF OSMIC ACID.

In the London *Lancet* of November 4, 1899, M. H. BENNETT describes his use of osmic acid for the purpose named. The technique of the osmic acid method is very simple. The nerve, having been exposed by as small an incision as possible, which in the case of the supraorbital, infraorbital, or mental branches need rarely exceed half an inch in length, is hooked up for purposes of fixation. The solution of osmic acid (1.5 per cent), freshly prepared, is injected by means of a sterilized hypodermic syringe, the needle of which is passed along in the substance of the nerve as far as it can be made to go. The total amount injected should be from five to ten minims, and it should be intro-

duced in two or three separate injections in order that the whole nerve may be as much as possible soaked in the solution. During the injections a pledget of sterilized gauze or wool should be firmly held around the needle at the orifice of the wound in order to prevent the escape of fluid externally. The amount of the solution really taken up in the nerve itself must of course be very small, and the retention in the operation wound of what regurgitates from the nerve probably aids the treatment by its effect upon the nerve ends exposed on the cut surfaces. The effect of the solution upon the soft tissues is an immediate blackening of them all, the blood which escapes becoming ink-like in color. No hindrance to primary union follows. In his present series, for instance, primary union occurred in all the cases with one exception, in which some dermatitis in a patient prone to general skin disease delayed healing for a few days. In some cases more extensive incisions may be necessary, since their extent necessarily depends in some degree upon the depth of the nerve to be exposed. In dealing with the larger nerves, especially in their continuity, several injections should be made side by side at the same level, a strong steel needle or a fine trocar and cannula being used, as the nerve tissues are extremely dense and resistant. As the resistance to the passage of the fluid between the nerve elements is very considerable it is well, also, in such cases to give a final free injection between the nerve and its sheath.

If the results of this method of relieving the pain in certain nerve conditions turn out to be so satisfactory as seems likely from what Bennett has seen of them, there is no reason why its scope should not be considerably extended, more particularly, for example, in the treatment of the definite nerve pains which follow in so many cases of recurrent cancer of the breast and other parts. It is possible, also, that it may be applicable to neuralgia of cerebrospinal or mixed nerves—*e.g.*, the sciatic—but at present Bennett has no information as to its effect upon the motor elements of mixed nerves. It is probable, however, that paralysis would result, in which case, of course, its use could hardly be justifiable under ordinary circumstances; but this is a point which can easily be cleared up. On the whole, so far as the class of cases which he describes is concerned, he is strongly inclined to the belief that the treatment by injections of osmic acid is the most promising with which he has up to now become acquainted, and it possesses at the least this solid merit, that should recurrence happen the repetition of the injections is such a comparatively simple matter that it may be undertaken without hesitation.

In conclusion, Bennett submits that the slight nature of the operative measures which this method involves must commend itself to all, since they render it justifiable in the early and more curable stages of the affection, and thus may obviate the loss of time frequently involved in useless medical measures which so often lead to these cases being referred to the surgeon for operation as a forlorn hope only.

AN EXPERIMENTAL STUDY OF ASPIRIN—A NEW SALICYLIC ACID PREPARATION.

Floeckinger contributes to the *Medical News* of November 18, 1899, the following conclusions reached from researches made by him with this new drug. In general, he remarks that aspirin is a most valuable substitute for salicylate of sodium for the following reasons: (1) Its agreeable taste; (2) its freedom from irritating effects upon the stomach; (3) the absence of tinnitus aurium after the administration of physiological doses; (4) the absence of cardiac depression; (5) the fact that it does not impair the appetite, even during prolonged use. He feels certain that other investigators will be able to demonstrate the advantages of aspirin, and should the price not be too high it will soon displace salicylate of sodium.

ANTIPYRETICS IN CHILDREN.

At the October meeting of the New York Academy of Medicine, Section on Pediatrics, Dr. A. Jacobi presented a paper entitled "Antipyresis in the Febrile Disorders of Infancy—Antipyretic Drugs; Their Use and Abuse in the Treatment of Fever." He stated that the effect of quinine is local in the cells of the tissues, while the phenols act both on the heat-regulating centers and upon the body surface. He asserted that it has not been conclusively demonstrated that the high temperatures of the acute infectious diseases are requisite to the formation of the antitoxin, whereas all clinical experience points out the danger of prolonged high temperature. The reason that the mortality is so low in relapsing fever is that the long remissions

counteract the harm done by the hyperpyrexia. Fever is not an entity, but a symptom, and its treatment should not be governed by rigid rules. A temperature that would be dangerous to one person would have but little significance in another; similarly, a fever that could be easily tolerated by a patient at the beginning of a long illness might be of the gravest importance in that same individual in a later stage of the same illness. Prolonged high temperature gives rise to malnutrition and marked anemia — conditions to which the young fall easily a prey.

The speaker then considered in detail the effects of several well known drugs. Of quinine he said that it accelerates the pulse and raises the blood-pressure when given in small doses, and is certainly an antipyretic, not only in malaria, but in febrile diseases of a remittent type, such as pneumonia and typhoid fever. The neutral tannate is a useful preparation in pediatric practice, yet he thought most physicians would prefer to give quinine sulphate, disguising its taste by means of syrup of coffee, elixir adjuvans, or chocolate. The latter is particularly acceptable to many children. Except in the fevers arising from intracranial disease he has found antipyrin a useful drug for the prompt reduction of fever. It is a sedative and analgesic, and, as it increases the blood-pressure, it is contraindicated in hemoptysis, although having a markedly styptic action. Acetanilid he characterized as a poisonous and dangerous drug—a derivative of anilin which, by changing the hemoglobin of the blood into methemoglobin, gives rise to the well known cyanosis. Phenacetine has a similar though milder action. Alcohol is well tolerated by feverish children. It is chiefly indicated in septic fevers, and should then be given with a liberal hand. Experience has shown that while very large doses are not only well borne but are beneficial during the height of the malady, these doses would not be tolerated when convalescence has begun.

Dr. SIMON BARUCH read a paper on "Hydriatic Measures in the Management of the Febrile Disorders of Infancy and Childhood." He declared that hydriatic treatment could be advantageously substituted for antipyretic medication in most of the fevers of childhood. A method of general application is to completely immerse the child for ten minutes in a bath at 90° F., and while this is being done, bathe the head and face with water at 60°. At the conclusion of this bath the little one should be wrapped in a blanket. When the temperature continues at 103° or higher this bath should be repeated at an interval of three hours, the temperature of the water being reduced 5° each time until it reaches 75° or 70°. In many of the infectious diseases, as a result of the circulation in the blood of toxins, the cutaneous vessels become atonic, and the heart is required to compensate for this enfeebled circulation by increasing its beat. It is just here that the superiority of hydriatic treatment could be easily demonstrated. It tends to restore that peripheral resistance in the blood-vessels which is so necessary to maintain a healthy balance in the circulatory system and protect the heart from undue strain. In many of the fevers of childhood it is well to have the child sponged off hourly, beginning with a temperature of 90° F., and gradually reducing until the water used has a temperature of only 60° F. Where the antipyretic action of this measure is too transient, he would advise wrapping around the abdomen hourly three folds of toweling wrung out of water at 70° and covered with thin flannel. An old linen sheet or table-cloth is most suitable for making these compresses, and they should not be covered with oiled silk. In cases of pneumonia a chest compress of 60°, renewed every two hours, would be found an efficient means of arousing the heart and diminishing the cyanosis. If the first applications are made at a temperature of 100°, and the temperature gradually reduced, the patients should be wrapped in a sheet wrung out of water at 75° or 80°, and then snugly covered with a blanket for ten minutes. At the end of this time the body surface should be rubbed with the hand wetted with water at 60° or 70°, and then dried. This application would be found very soothing as well as antipyretic.—*Philadelphia Medical Journal*, Nov. 4, 1899.

THE SURGICAL TREATMENT OF PERFORATION OF THE BOWEL IN TYPHOID FEVER.

The *Philadelphia Medical Journal* of November 4, 1899, contains an article by KEEN on this topic which concludes as follows:

1. The surgeon should be called in consultation the moment that any abdominal symptoms indicative of possible perforation are observed.

2. If it is possible to determine the existence of the preperforative stage, exploratory operation should be done under cocaine anesthesia before perforation, shock, and sepsis have occurred.

3. After perforation has occurred, operation should be done at the earliest possible moment, provided

4. That we wait till the primary shock, if any be present, has subsided.

5. In a case of suspected but doubtful perforation, a small exploratory opening should be made under cocaine to determine the existence of a perforation, and if hospital facilities for a blood-count and for immediate bacteriological observation exist, their aid should be invoked.

6. The operation should be done quickly but thoroughly, and in accordance with the technique already indicated.

7. The profession at large must be aroused to the possibility of a cure in nearly, if not quite, one-third of the cases of perforation, provided speedy surgical aid is invoked.

ANESTHESIA BY INJECTION OF MINUTE QUANTITIES OF COCAINE INTO THE SPINAL CANAL.

In spite of the slight mortality usually following general anesthesia, efforts are being constantly made to discover some substitute; for when death does occur, it is usually under circumstances so unexplainable, and apparently so unavoidable, as to give rise to a dread of general anesthesia, not only in the minds of the laity, but also among many experienced surgeons. This has led to the introduction of local anesthesia; but, unfortunately, local anesthesia by the methods of infiltration, etc., is applicable only in a limited number of operative procedures, mostly in minor surgery.

Professor August Bier, of Kiel (*Deutsche Zeitschrift f. Chirurgie*, Bd. li, Hefte 3 und 4), has recently introduced a method of producing more extensive anesthesia by the introduction of a solution of cocaine into the vertebral canal. A hollow needle is introduced as in the operation of lumbar puncture, and a comparatively small amount of a weak solution of cocaine (usually 0.5 of one per cent) is injected. Bier believes that the anesthetic effects are produced by the action of the drug upon the nerves without sheaths and the ganglions which are found within the spinal canal; he has used this method in six major operations without any suffering to the patient and without perceptible after-effects. The average amount of the drug used was about 0.005 of a gramme, and anesthesia of the entire lower extremities and most of the abdomen resulted in about eight or ten minutes after the injection.

Although having its origin from so reputable a source, this method of anesthesia does not seem to have attracted much attention. In the current number of the *Centralblatt f. Chirurgie*, 1899, vol. xxvi, page 1110, Seldowitsch reports four cases in which he has used this method for major operations. A slightly larger quantity of cocaine was used than recommended by Bier (0.01 gramme of cocaine), but the effects produced were practically the same, complete anesthesia following in every case and lasting sufficiently long for the completion of the operations, the longest of which lasted fifty minutes. The operations performed were a Pirogoff amputation of the foot for carcinoma; amputation of the leg and extirpation of the inguinal glands for melanosarcoma of the calcaneum; removal of an extensive skin carcinoma in the region of the knee and enlarged inguinal glands; and resection of the knee for tuberculosis. Sensation returned a short time after the completion of the operation, and there were no serious after-effects in any case.

Seldowitsch's results differ from those of Bier, however, in that there were symptoms evidently due to the effect of the drug following in all cases. A chill, slight rise of temperature, and increased frequency of the pulse were noted in all of the cases, and in two there was headache, vertigo, vomiting, and some nervous excitability. The patient operated upon for melanosarcoma died from cachexia five weeks after the operation, and at a necropsy nothing abnormal could be found in the spinal canal or spinal cord. With the exceedingly minute amount of the drug used it is difficult to see how any very serious consequences can follow. Probably the application of this method will be limited to operations on the lower extremities and abdomen, but if it proves successful in the future as thus far, a decided advance has been made. It remains to be seen whether the anesthesia is due to the minute quantity of cocaine used, or largely to some other source, as is the case in local infiltration anesthesia. The results of this method of anesthesia thus far are so entirely satisfactory that it would seem that the method is worthy of a more extensive trial.—*Philadelphia Medical Journal*, Nov. 4, 1899.

A NEW SOLUTION OF IODINE FOR LOCAL APPLICATION.

In the *Philadelphia Medical Journal* of November 4, 1899, ELSBERG recommends the use of a new iodine solution. As he says the tincture of iodine is usually preferred as a counter-irritant. The official tincture is only of seven-per-cent strength, although iodine is soluble in alcohol up to ten per cent. Many practitioners have applied only one coat of the tincture to the part, and have expressed surprise that they have not obtained good results therefrom. If the tincture be applied in the proper manner, as described by Koenig, we have in it a valuable topical remedy.

Every one, however, has observed that on account of the alcohol in the tincture the iodine is spread over a larger area of skin than necessary, and that it is usually impossible to prevent drops of it from running down the part for some distance and staining it. Some time is lost, also, in waiting for successive coats to dry. The ideal iodine solution for topical application would be one in which the drying occurred rapidly, in which no spreading occurred, and one that was of such a strength as to necessitate only one coat to be painted on the part. The solution which Elsberg has made use of for some time past, and which he believes fulfils all these requirements, consists of:

℞ Iodini, 20.0;
Alcoholis,
Ætheris, āā 40.0.

That is, it is a twenty-per-cent solution of iodine in equal parts of alcohol and ether. This solution dries as rapidly as it is painted on the skin, and is of such a strength that but one coat, or at the most two coats, need be applied. Moreover, because of the rapid evaporation of the alcohol and ether mixture, it has no tendency to spread. The application of one coat of this solution is followed in a few minutes by a slight burning and tingling sensation in the skin, which disappears in a short time.

If the area of skin that has been painted with the solution be left to itself, or if it be covered with a piece of gauze, a blister will develop. This blistering can be prevented in the majority of the cases, however, by covering the part with a thick layer of any bland ointment spread on gauze—plain vaselin or zinc oxide ointment, for example.

In a large number of chronic exudative conditions applications of this solution of iodine have given very satisfactory results. Subacute and chronic synovitis of the knee and other joints will often yield very rapidly to treatment when iodine applications, plus a simple compression band, are made three or four times a week. In a number of cases the fluid was absorbed much more rapidly when this method of treatment was followed than when the limb was immobilized by a plaster-of-Paris splint. The iodine applications are also very efficient in removing the exudation and infiltration in chronic inflammatory conditions in and around joints, bursæ, and tendon sheaths. Especially in the beginning of the treatment, when massage is very painful, the iodine applications combined with passive movements yield very good results. After old injuries to the shoulder, when considerable pain and stiffness persist for a long time, this method of treatment gives satisfactory results. If, as can always be done, the blistering be judiciously prevented, the skin can be kept in a condition that will allow of massage being performed when desired. For one to two days following the iodine application the patients will regularly experience considerable relief from the pain. The use of a tightly applied bandage must not be omitted, in order to compress and, in a limited sense, immobilize the affected part.

The hydroceles which occur in infants and young boys will often disappear after these iodine applications. The resorption of the exudate is often rapid and usually complete. It is unnecessary to state that in these little patients only a very small area should be painted with the solution.

Equally striking are the results to be obtained with this agent in simple chronic enlargements of the lymphatic glands, especially those that occur in the submaxillary and cervical regions. Elsberg has seen glands of considerable size in these regions, which had resisted all other methods of treatment, and were considered cases for operative interference, yield to the local use of iodine. Internal treatment should never be omitted. Specific affections will yield to mercury and the iodides. Lymphosarcoma will improve under arsenic. The scalp, the mouth, and the teeth, the nose, throat, pharynx, tonsils, etc., should be carefully examined and treated. A dry scalp should be treated, tonsils or adenoid vegetations removed, the teeth attended to. Nor should it be forgotten that enlargement of the cervical lymph glands may be due to carcinoma

of the stomach or liver, as well as to malignant disease of the head and neck. It is often difficult, if not impossible, to distinguish between tubercular and simple chronic inflammations of the cervical glands. In these cases he makes iodine applications and gives arsenic internally. If the glands decrease in size, they are not tuberculous. If no improvement is noted in two weeks, the enlargement is considered to be due to tubercular disease, and the glands are removed with the knife. When suppuration of the gland has taken place and sinuses persist even after the operation, the combination of local applications and injections of tincture of iodine into the sinuses has given some good results.

Although he has applied the iodine solution over large areas of skin in many cases, Elsberg has never seen a case of iodine poisoning from its use. Only in one case did he succeed in obtaining a well marked reaction from the urine.

In conclusion, although the local use of iodine in the above mentioned conditions is well known, it has seemed to Elsberg that the very good results he has obtained would justify this renewed recommendation of the agent. After a careful observation of a considerable number of cases, it has seemed to him that with this twenty-per-cent solution of iodine distinct therapeutic results can be obtained which would not be possible with the much weaker official tincture of iodine which is generally recommended and used.

EXPERIMENTAL RESEARCHES ON THE EFFECTS OF DIFFERENT ANESTHETICS ON THE KIDNEYS.

KEMP has contributed an exhaustive research upon this subject to the *New York Medical Journal* of November and December, 1899. In concluding his report he says:

1. Examine the urine carefully and measure same for twenty-four to forty-eight hours before operation; the urea, indican, and chlorides should be noted.

2. Catheterize the patient immediately before the anesthetic is started. This eliminates residual urine from any cause whatever. He believes the nervous element may prevent the complete voiding of the urine. Examine this specimen.

3. Catheterize the patient immediately at the close of the anesthesia, noting time and nature of operation, quantity of anesthetic, nature and method of administration, and how borne by patient; measure the urine, and you have the absolute results of the anesthesia.

Test urine for specific gravity and quantity secreted, also for albumin, sugar, casts, etc., and also for indican, chlorides, urea, etc. Specific gravity and quantity have been noted at Johns Hopkins Hospital.

The following interesting fact was noted: Indican was increased very markedly by ether, and also was produced markedly if absent before anesthesia; and if present in a small quantity, this was considerably increased. The same result was produced by chloroform, but was less in quantity than with ether. With nitrous oxide indican was produced or increased, but also less than with ether.

Kemp was able to make these tests on twelve cases of ether narcosis, three of chloroform, and two of nitrous oxide and oxygen.

The comparative effect between chloroform and nitrous oxide was difficult to judge of, on account of the few cases, though nitrous oxide seemed to produce a trifle less than the chloroform. As regards albumin, following the method of catheterism, as above described, in twelve cases of ether he found a trace of albumin in three instances where there was none previous to operation, and in one case a slight increase where it previously existed; no renal complications, however, followed, so far as he could learn. With chloroform (three cases) he found no change. In two cases of nitrous oxide there was no change in the urine after operation; in one case there was no albumin previous to it.

In the other case of nitrous oxide and oxygen there was a trace of albumin before operation and a few casts. After operation the albumin disappeared, the number of casts diminished, and the patient passed seventy-five ounces of urine in the first twenty-four hours after operation, against fifty-two ounces twenty-four hours before. There was a special reason for this, namely, the slight changes in urine. A hypodermoclysis of normal saline solution, six ounces, was given just before the anesthetic was removed. This procedure in such conditions seems of value, as it is simple but efficacious. An enema is apt to be voided or objected to by the patient. A convenient place is the lumbar region, between the crest of the ilium (posteriorly) and lower border of the ribs, gentle massage being employed.

The patient had no renal complications.

This method is to be employed when the question of renal (subsequent) complications might occur.

As Dawbarn does with "infusion to prevent shock," so should we with "hypodermoclysis" to minimize so far as possible the danger of renal complications due to the anesthetic in those cases where disease of the kidneys already exists or is suspected. This rule should be applied to any anesthetic. The employment of that anesthetic least deleterious to the kidneys, with the addition of hypodermoclysis at the close of the operation, would seem a logical course to pursue.

THE INFLUENCE OF ALCOHOL ON MENTAL AND MUSCULAR ACTIVITY.

At the seventy-fifth annual meeting of the German Association of Scientists and Physicians, held at Munich from September 18 to 23 last, Prof. E. KRAEPELIN, of Heidelberg, delivered an address on the "Influence of Alcohol on Man." He declared that the way to combat the evils of alcoholism is by making careful experiments to ascertain its bad or good influences and by laying the results before the public. This line of work he has pursued for some years in conjunction with several colleagues. He has found that speech utterance and the association of words and ideas in thought are favorably influenced and facilitated by alcohol, but that the quick and ready appreciation of disconnected syllables — as employed in psycho-physical experiments — is dulled and diminished. Experiments were tried with caffeine, bromine compounds, etc., but results like those obtained from the use of alcohol could only be secured by using paraldehyde. Alcohol has proved itself to belong to the group of narcotics (soporifics). Dr. Vogel's experiments have shown that alcohol increases the ability to count beats while observing the metronome, but decreases the ability for simple addition of numbers. Dr. Frey has observed that twenty grammes of alcohol is injurious to fresh unfatigued muscle, but increases temporarily the power or capacity for work of an already tired muscle. Orszekowski, of Moscow, made similar experiments in 1894 and showed that alcohol at first increased the power (or capacity for work) of muscle, but this soon reached its limit.

It was shown by Professor Kraepelin's own experiments that under the influence of alcohol the force of voluntary cerebral discharges inciting to movement is increased, while the peripheral muscle itself becomes fatigued more quickly than under normal conditions. Similar experiments with caffeine showed that the latter really increases endurance. Alcohol makes easy the cortical liberation (auslösung) of movements, the transformation of ideas and memories of movement into deeds, but does not confer real mental power. The injurious after-effects of alcohol last as long as ten hours. The subjective feeling of power and strength is due to the facility for liberation of movements from the cortical areas above alluded to. The continued use of alcohol from day to day—at the rate of sixty grammes per diem—decreases mental ability gradually and makes it sink. The consumption of eighty grammes of alcohol—equal to that contained in two liters of beer—causes the ability for work to sink from the fifth day onwards. If the use of alcohol is then discontinued the intellectual power begins to rise again toward its original level, but by reverting to its use the intellectual power begins to sink more rapidly than before.

The results of all the experiments made convinced Professor Kraepelin that alcohol, instead of being a real friend, is a most untrustworthy comrade.—*The Lancet*, Nov. 18, 1899.

DUSTING POWDERS IN DISEASES OF THE SKIN.

To the *Medical Press and Circular* of November 8, 1899, WALSH contributes a paper in which he tells us that the best drying powders for babies are made of the simplest of materials. Where the skin is healthy violet powder, starch, or fullers' earth, if pure, will answer the purpose. The addition of a little boracic acid or other mild antiseptic is desirable. It is hardly necessary to use the pure boracic acid that forms the bulk of some toilet powders. Where the surface of the skin is inflamed the nature of the powder should be modified. In cases of slight irritation the following formula is excellent:

℞ Pulv. acid. boracici,
Calaminæ, āā ʒ ij;
Amyli pulv., q. s. ad ʒ ij.
M. ft. pulv.

Where there is weeping or severe inflammation (especially if syphilitic) two drachms of europhen may be added.

Dusting powders are chiefly useful in all periods of life in the treatment (*a*) of inflamed folds of skin, or intertrigo, in groin,

armpit, and so on; (*b*) of excoriated and weeping surfaces; (*c*) of open ulcers.

(*a*) These eczematous inflammations of opposed folds or areas of skin are often due to seborrhea, or to parasitic fungi. They are common in the groin, armpits, bends of arms or legs, perineum, about the scrotum and buttocks, between the mammæ, and creases of the skin of the neck and belly in stout persons.

The writer has found the best powders for this condition are made of starch, with oxide of zinc, or calamine, and an antiseptic in the shape of boracic acid (one or two drachms to the ounce), salicylic acid (ten grains to the ounce), or europhen (one-half or one drachm to the ounce). The last mentioned is an odorless substitute for iodoform. The addition of a little calomel is often useful.

(*b*) Excoriated surfaces resulting from injury or from an irritant which may attack the skin from without, or according to the writer's theory of excretory irritation, from within. A true eczematous condition—that is, a catarrhal weeping inflammation of the skin without obvious cause—is probably an extremely rare condition. In any case the object of the powder is to protect, to absorb discharge, and act as an astringent, to provide an antiseptic and aseptic application, and indirectly to form an artificial scab, and thus imitate the natural processes of healing.

Starch is one of the best drying applications to a moist inflammatory surface. Another excellent application is the compound powder of chalk. Slight astringency is obtained by adding zinc oxide or carbonate, and antiseptic action by boracic acid, salicylic acid, or europhen. Calomel is a good powder for unbroken skin, but is apt to damage a moist or discharging skin, possibly owing to the formation of a perchloride. Its use is strongly indicated, however, in syphilitic rashes about the buttocks of children. Kaolin (a silicate of alumina) is apt to irritate some skins, but can be used with a tar preparation. Iodoform, besides its unpleasant smell, has the disadvantage of setting up an acute dermatitis in some persons who have a predisposition against the drug. Other vehicles of active agents are rice, arrowroot, orris root, lycopodium, and talc.

For a simple excoriated surface the following may be used:

℞ Calaminæ, ʒ ij.
Europhen, ʒ j.
Amyli, ad ʒ j.

M. ft. pulv.

(*c*) Open ulcers, whether specific or non-specific, are often greatly benefited by dusting powders. Certain precautions are needed. Boracic and salicylic acids often cause great pain. Calomel is rarely safe to apply to any but the syphilitic sore, whether hard or soft. Iodoform is excellent for both ulcers, whether specific or non-specific. Europhen is somewhat less active as a substitute, but has not the offensive smell of iodoform. A plan used by the writer in treating non-specific ulcers is to incorporate a bland powder (*e.g.*, starch and boracic acid), with a pad of absorbent boracic wool, applied as a dry dressing. The usual way of applying these external applications is to dust the material on with a swan's-down pad or a pledget of cotton-wool; or it may be peppered over the surface from a small dredger. One of the most satisfactory ways of procuring prolonged contact with the skin is by Unna's plan, by which the powder is sewed up in long flat bags, and bandaged to the skin.

VACCINATION.

The *New York Medical Journal* of December 2, 1899, contains an article by ATTWOOD on this subject which is of importance. He tells us that antivaccinationists, from the time of the immortal Jenner to the present day, have pointed to cases of sloughing and infection as justification of their teachings.

The question naturally arises, What practicable method, if any, has been devised to obviate such deplorable results? His answer to this question is, Use sterile glycerinated lymph, hermetically sealed in glass tubes, and thus protected from accidental contamination. As evidence of the high esteem in which glycerinated lymph is held Attwood appends this letter, received from Professor Welch, of Johns Hopkins University, whose word is authority in medical teaching:

BALTIMORE, March 12, 1899.

DEAR DR. ATTWOOD—I have received your letter and the photograph. It is unquestionable that the glycerinated vaccine lymph is the best, and it ought to replace the ivory points. The glycerin destroys most contaminating bacteria to which such results as that shown in the photograph are due, and leaves unaffected the organism of vaccinia. Thus very sore arms from extraneous infection are almost excluded by the use of glycerinated virus. Parke, Davis & Co.'s aseptic vaccine (glycerinated) is trustworthy and as good as any to be obtained.

Very truly yours,
WILLIAM H. WELCH.

Glycerinated vaccine is aseptic vaccine. It consists of the pulp of the cowpox vesicles mixed with pure glycerin. The glycerin destroys the comparatively few streptococci or

other bacteria likely to be present despite the most careful manipulation. While glycerin is not a powerful germicide, it is sufficiently so, as has been demonstrated, to render germ-free and to preserve aseptic the virus with which it may be mixed.

To those who are acquainted with the methods of Messrs. Parke, Davis & Co. in the production of serums it is unnecessary to state that in the elaboration of vaccine they guard every step with the most uncompromising scrutiny. They assure the purity of their product by the most rigid antiseptic and aseptic measures. The heifers, before being vaccinated, are tested with tuberculin. As an additional safeguard they are slaughtered afterward and a careful inspection of the carcass is made by an expert. If any evidence of disease is found the vaccine virus from that animal is entirely destroyed.

In performing a vaccination the part selected should be made surgically clean. The site is then scraped with a sterile lancet until serum begins to exude. If by too vigorous scraping blood should be drawn, the spot should be carefully dried with a pledget of sterile cotton before applying the lymph. The ends of the capillary glass tube are then broken off, and the lymph is ejected upon the site of the scarification by means of the rubber bulb placed upon one end of the tube. The lymph is then thoroughly rubbed into the abraded area with the lancet and the spot is permitted to dry. The spot is protected by covering with a pad of sterile gauze, retained by means of a bandage.

In conclusion, it may not be inappropriate to call attention to several sources of infection, to guard against which as much care should be exercised as in undertaking any operation involving an incision into the sound integument; these are dirty scarifiers, unwashed arms, unwashed hands, and unclean underwear, which should never be allowed to come in contact with the site of vaccination. The method which Attwood uses to make the selected spot surgically clean is about as follows: The arm is first washed well with soap and water and dried; then the point of inoculation is bathed with alcohol on a pledget of cotton, and after the alcohol has evaporated the scarification is made.

Another method which he has tried with good results is to subcutaneously inject the glycerinated lymph with a hypodermic or an antitoxin syringe. The syringe must be so constructed as to admit of thorough sterilization before use.

SEVERE HEMATEMESIS FROM SIMPLE ULCER OF THE STOMACH TREATED BY DIRECT SUTURE.

STEVEN (*Glasgow Medical Journal*, November, 1899) operated upon a man thirty-eight years old, with a six months' history suggesting gastric ulcer, because of severe and continuous bleeding manifested in the form of rich coffee-colored vomit. Blood was passed both from the stomach and intestine. The site of the ulcer was readily recognized by the presence of fibrous bands which had been formed between the peritoneal surface of the stomach, corresponding to the site of the ulcer, and the under surface of the left lobe of the liver. The patient died of exhaustion a few hours after operation.

THE INFECTIVITY OF MALIGNANT GROWTHS.

SMITH and WASHBOURN (*The Lancet*, Oct. 28, 1899), in a paper on the infectivity of malignant growths, alluded to Lack's experiment: He opened the peritoneal cavity, and splitting the ovary, scraped the cut surface and diffused the scrapings through the abdominal cavity. Twelve months later, at the necropsy, numerous masses of malignant growth, having all the features of columnar-celled carcinoma, were found in the abdominal cavity. If this single experiment were confirmed it would form a basis of explanation of secondary infective characteristics, but it presented several difficulties in the way of explanation. The analogies existing between tubercle — a bacterial disease — and malignant growths were pointed out as suggestive of the parasitical origin of the latter. A number of instances of accidental inoculation in the same individual from preexisting growth were given, and the possibility of reinfection during operation was insisted upon. A reference was made to the experimental inoculation of individuals, and cases were mentioned in which there was good evidence of the accidental inoculation of one individual from another. The geographical distribution and the so-called cancer houses supported the view that cancer was infective. It was found to be more prevalent in shallow, low-lying valleys.

The experimental evidence of the infectivity of cancer in animals was considered. Cancer had not been satisfactorily shown to be capable of transmission from the human being to the lower animals. There was, however, definite evidence of the transfer-

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ence by inoculation of cancer from one animal to another of the same species. Their own work upon infective sarcomata in dogs, which was briefly quoted, was quite conclusive. They had succeeded in passing these growths through a series of dogs. Sometimes the tumors disappeared, as indeed they did in man, when presumably the resisting powers were great; sometimes, when the puppies were weakly, they continued growing and gave rise to secondary deposits. One very important observation was the fact that if the growth subsided the animal was immune to subsequent inoculation. The direct evidence of the presence of parasites in malignant growths was considered, and the experiments of Sanfelice were described. The latter, by the inoculation of a blastomyces obtained from fruit juice, produced what appeared to be carcinomata in dogs.

Plummer has isolated a blastomyces from a human cancer which reinoculated into animals had produced cancer. A difficulty existed in explaining why secondary deposits should be always of the same histological structure as the primary growth; and it was suggested that it was necessary for both the parasite and the epithelial cell to be conveyed to distant parts, and that the former caused a proliferation of the latter.

Finally Smith and Washbourn formulated the following conclusions: (1) A malignant growth might be regarded as local in origin and as possessing the power of infecting adjacent and distant parts of the same individual; (2) inoculation might take place from one part to another of the same individual apart from transference by the natural channels; (3) there was good evidence to show that one individual might be infected with growth from another; (4) there was experimental evidence to show that growths might be transferred from animal to animal of the same species by inoculation; (5) there were found in many malignant growths bodies which had a resemblance to microorganisms and which had been regarded as belonging either to the protozoa or the blastomycetes; (6) a new growth having the structure and also the behavior of carcinoma had been described as occurring, at any rate in two instances, from inoculation with a form of blastomyces; and (7) these experiments were highly suggestive that the bodies found in cancer were the cause of the disease, though the evidence was wanting that directly associated the two.

Dr. Symes Thompson mentioned two instances bearing on malignant infection which he had observed. Two men, not related, but who had married sisters, both developed epithelioma of the tongue within a few years of each other. One of them never smoked at all, and the other had only smoked cigars. The other case related to a man affected with epithelioma of the tongue, which was removed. Two years later the disease returned, and half the tongue was removed. There was no recurrence for three or four years; then it recurred, and it was found to be sarcoma. One and a half years later secondary tumors formed in the neck. These also were removed and were found to be sarcomatous.

A CASE OF PYOPNEUMOTHORAX FROM PERFORATION OF GASTRIC ULCER.

RANSOM (*The Lancet*, Nov. 11, 1899) reports the case of a woman aged twenty, who after a period of gastric irritation and some bloody vomiting was suddenly seized with an agonizing pain, followed by vomiting, and later by the coughing up of large quantities of phlegm of an unpleasant taste and odor. The examination showed a pyopneumothorax. A rib was resected and the chest cavity was drained. About two weeks later the patient died of pneumonia. At the autopsy an indurated ulcer was found on the hinder wall of the stomach, near the cardiac end, firmly adherent to the diaphragm. In the middle of this was a small perforation closed by recent lymph.

PRIMARY TUMORS OF THE SUPRARENAL GLAND AND THEIR REMOVAL BY OPERATION.

MORRIS (*British Medical Journal*, Nov. 11, 1899) gives a short account of three cases of tumors of the suprarenal glands, which he operated upon some years ago. He states that primary enlargements of the suprarenal gland may be either a purely glandular proliferation, which some pathologists have not very appropriately called adrenal goitre; a large adenoma; or a malignant growth, which many have described as carcinoma, others as sarcoma. The most frequent symptom is marked and steadily increasing loss of strength, frequently accompanied by emaciation and gastrointestinal symptoms. The patients complained of pain in various parts of the body, but there was not much disturbance of the circulatory system, nor were the skin changes marked. As a rule there

is an absence of marked urinary symptoms. Extreme mobility of the tumor will be found in some instances a notable symptom. The rapidity of growth and frequency of metastases would seem to be in favor of adrenal as opposed to renal new growths.

The prognosis of adrenal tumors is very unfavorable. The treatment consists in removal by the transperitoneal route, if the tumor is enlarged and freely movable; by the lumbar method, when the tumor is situated back in the loin, and is cystic and not very large; when the diagnosis is uncertain and the tumor is large and fixed, or but slightly movable, the exploration should be first made through the incision along the linea semilunaris. Before attempting enucleation in front, an oblique incision of moderate length should be made, and through this all the posterior, outer, upper, and lower connections should be severed. The wound should then be covered and the vessels ligatured from the front.

RESECTION OF THE LARGE INTESTINE FOR MALIGNANT GROWTH, WITH REESTABLISHMENT OF THE INTESTINAL TRACT.

BATTLE (*The Lancet*, Nov. 11, 1899) reports four cases of this nature. He has searched the literature of recent years for similar cases, which he groups under two headings: (1) those in which obstruction of the bowel was present at the time patient was treated; (2) those in which operation was performed before obstruction had come on, or in which obstruction had been relieved by previous operation. Cases in which growth had been removed, or in which the continuity of the canal had not been reestablished, are not included. When obstruction was present at the time of operation, seven cases recovered and four died. When no obstruction was present at the time of operation, six cases recovered and four died.

EXCISION OF THE RECTUM BY A NEW METHOD.

CARWARDINE (*British Medical Journal*, No. 2026, 1899) aims, by a method which he describes, at the complete and safe extirpation of the disease and the functional restoration of the parts. The two methods of operation in general use are the perineal and the sacral.

The perineal method is limited in its application to very few cases and destroys the natural action of the parts. It is necessarily imperfect, since none can be regarded as perfect unless the lymphatic area be extirpated at the time of the operation.

The sacral method of Kraske with its modifications is open to two great objections. The first is the very serious mortality. Kraske himself, of eighty carefully selected cases, lost fifteen, a mortality of nearly twenty per cent; that of his earlier cases was thirty-four per cent. Cheyne in 1896 collected one hundred cases of excision of the rectum and stated that sixty-one were no better off than if they had been left alone, and not so well off on the whole as if they had had colotomy done; and twenty-seven died as an effect of the operation. The second objection is the great interference with the function of the parts. Perhaps Carwardine does not exaggerate the condition in which such patients are left when he says, "Is it not pitiable to behold a man with a patent gashole in the middle of his sacrum and with an india-rubber bung to block it and prevent it contracting?"

In the operation which Carwardine has devised, he advises a preliminary dieting for several days to reduce the feces to a minimum. When the cancer is high up and there is need for an aseptic operation, a preliminary colotomy is advisable. The operative position is one with the patient prone and the buttocks elevated, the left knee supported on a stool—a kind of inverted Trendelenburg position.

The first and most tedious part of the operation consists in a subperiosteum excision of the coccyx and fourth and fifth pieces of the sacrum. This leaves a bit of periosteum to which the sphincter ani, levator ani, and coccygeus remain attached. Median proctotomy is then performed by passing a long and slender knife in at the anus, transfixing the periosteum above—*i.e.*, that belonging to the fourth sacral segment—and cutting quickly through everything by a sawing movement exactly in the middle line. The mucous membrane may then be slit up in the middle line posteriorly.

The growth and upper part of the rectum are now freely exposed. The whole thickness of the gut is divided transversely with sharp scissors some distance below the growth, leaving intact if possible the mucous membrane over the sphincter. It is also completely divided on either side. As soon as the prostatic level is reached and the

levator ani is divided, the separation of the rectum becomes easy. At a distance of at least an inch above the growth the mucous membrane alone is divided transversely, not the whole thickness of the gut wall. This exposes the perirectal tissues and the presacral tissue and glands. This presacral tissue is separated from the sacral periosteum up to the level of the hollow of the sacrum, the peritoneum being pressed out of the way in front. In this presacral tissue are found often many infiltrated glands. It is strongly pulled down and divided as high up as practicable. The cut above and below is then united by silkworm sutures.

The author operated on two cases, one preceded by colotomy. The wound united perfectly, the stitches being removed in nine days. There resulted in each case a contractile anus, with a thick band of tissue behind uniting the lateral sphincters, and the bifid bony tail.

THE TREATMENT OF LUPUS.

HALL (*Quarterly Medical Journal*, November, 1899) notes that the great variety of methods suggested and practiced for the cure of lupus testify to the unsatisfactory results of any one in particular.

Philipson holds that sodium fluoride, given internally, has a curative action on lupus, though owing to its effect on the stomach the requisite quantity of one-seventh of a grain cannot be continued sufficiently long to effect a complete cure.

Fournier reports a case cured by calomel injections. McLeod refers to Finsen's chemical ray method, as carried out in Copenhagen; to the *x*-ray treatment; to complete incision, with transplantation; to the hot-air treatment; to the Wood spicule method.

The chemical ray method consists in focusing either sunlight or the light from an arc lamp, by means of suitable lenses, on a portion of the growth, having first passed the light through a cylindrical tube with glass ends, containing a solution of cupric sulphate. The patch is made anemic by a piece of glass pressed on to it by strapping. Exposure is made for about one hour daily.

The treatment lasts for four to six months. Reaction after a few days is marked. The treatment is painless, the scarring only slight, and the cicatrices, when present, smooth.

The treatment by exposure to *x*-rays has been successfully used by Neisser and others. There is said to be rapid healing. The time required is three-quarters of an hour daily for six months.

The complete extirpation with transplantation of a flap from some other part has been largely performed by Lang, of Vienna He calls attention to the importance of excising at least one-quarter of an inch beyond the margin of the disease, and using a sufficiently large piece of skin to allow for shrinking. The wound is dressed with sterilized gauze again in about ten days, when it is completely healed. Seventy per cent of his cases are said to show no recurrence.

The hot-air treatment is painful, requiring anesthesia, and needs very skilful handling, lest too much tissue be destroyed. It possesses no particular advantage over the cautery.

For small circumscribed nodular patches, Unna uses spicules of wood previously soaked for a few days in a strong mercury and carbolic lotion. The projecting ends of the spicules are cut off, and the whole is covered with mercury and carbolic plaster. After two days the plaster is removed, and the spicules are found to be lying in small pustular depressions. When the nodules have all been destroyed in this way, the patch is allowed to heal. This method is simple, cheap, rapid, and apparently painless.

SURGICAL DISEASES OF THE KIDNEY.

FENGER (*Clinical Review*, vol. ii, No. 2), after a brief sketch of the origin and growth of surgery of the kidney, alludes to methods of obtaining an examination of urine. He states that an aspiratory puncture with a fine needle above the symphysis and removal of the urine through a syringe does away with the danger of infection by the catheter and protects against contamination of the bladder urine.

The treatment of a movable kidney with an elastic abdominal supporter and a pad under the ribs should first be tried. If this fails, the kidney is laid bare, pushed up into its normal location, and the fibrous capsule together with a layer of cortical substance united with the fascia and outer periosteum of the twelfth rib by three or more sutures. To avoid relapse, in addition to these sutures, a flap of fibrous capsule about an inch broad and of the length of the kidney is dissected out and united with the borders of the divided muscles.

Nephrorrhaphy has a mortality of about one per cent, sixty-five per cent are per-

manently cured, ten per cent are improved, and twenty-two per cent relapse.

Contusion of the kidney is treated by absolute rest in bed for three weeks to avoid the danger of secondary hemorrhage. Shock is treated by stimulants, and pain by morphine. It is important to avoid the use of the catheter, and absolutely essential to be cleanly if the catheter must be used. Hemorrhage from the larger vessels may require ligature or tampon.

Gunshot wounds of the kidney should be sealed after a thorough cleansing of the skin, and the patient should be kept in bed for at least three weeks. If a large swelling and symptoms of anemia appear, the kidney should be laid bare and the hemorrhage stopped by ligature or tampon or nephrectomy. Incised wounds, if clean, may be sutured. If urine appears drainage may be required. If hematuria persists despite rest and ergot, nephrectomy may be indicated. A bladder full of coagula is best drained by Bigelow's evacuator. If this fails, the bladder should be opened above the pubes.

When the kidney contains stone, this organ is operated on through an oblique lumbar incision, brought out into the wound, palpated, and needled. If retention exists, the pelvis is found by aspiration and the kidney opened on its convex surface on the needle as a guide. When the pelvis is opened exploration is made by the finger or metal sound. The stones are extracted with as little manipulation as possible. The ureter is then examined with a metal probe to determine its permeability and to detect stones. The stones extracted should be carefully examined to determine whether pieces have broken off and have been left in the kidney. If asepsis is certain, the wound of the kidney should be united by catgut sutures, by which hemostasis is assured. If the stone is located in the pelvis near the ureter, it may be removed by an incision through the posterior pelvic wall.

Nephrotomy, or opening into a suppurated kidney to evacuate pus and remove stones if present, is performed from the most prominent point of one of the thin-walled sacs. Exploration is then made with the finger and steel sound for stone. The thin, wasted kidney wall does not bleed. The wound in the kidney is united to the skin and the cavity packed and drained, in order to overcome inflammation by local treatment. The mortality of nephrectomy is so great that it has been almost abandoned.

When the only useful kidney is closed by stone, nephrotomy should be done during the period of tolerance. Hot baths, careful massage of the ureter, electricity, and chloroform narcosis may be tried for a day or two. If the patient is not operated on seventy-two per cent die, while the operation has saved sixty per cent.

Pyonephrosis and pyelonephritis are treated by the removal of obstruction, and operation when the disease is unilateral or the sepsis acute. Nephrotomy is first performed, with drainage. If suppuration persists, secondary nephrectomy may be required. Primary nephrectomy should be performed only when the kidney tissue is filled with a large number of abscesses and acute sepsis demands the removal of the organ.

Tuberculosis of the kidney, if unilateral, should be subjected to nephrectomy unless the urea is diminished below one-third of the normal, in which case no operation should be done. Facklam reports a perfect cure in over forty per cent of eighty primary nephrectomies.

Malignant tumor is, of course, treated by a nephrectomy. The mortality of the operation was in the last five years twenty-five per cent. Israel reports three cases out of eleven in good health after three years. Fenger notes one case that has survived and is well eight years after operation. About ten cases of benign tumors removed by operation have been reported.

Echinococcus cysts are treated by opening and a permanent drainage.

Aneurism of the renal artery can be positively diagnosed only by exploratory operation. Its cure requires nephrectomy.

Cystonephrosis, by which term are included both hydronephrosis and pyonephrosis, is treated by rendering the ureter patulous. This may require stitching the kidney in place, or a plastic operation for the cure of a valve-formation or stricture, or the removal of a stone. When this measure is either impossible or ineffective, nephrectomy should be performed.

Fenger speaks of exploratory incision with excision of a piece of kidney tissue as a treatment advisable for obscure cases of renal bleeding and obstinate kidney pain. He notes two recorded cases in which this operation was followed by local gangrene of the kidney.

Ether is preferred as an anesthetic, and when irrigation is required salt solution is given preference. The use of iodoform is

especially to be avoided, since Stubenrauch has shown that even small quantities of this drug applied locally to kidney tissue cause extensive fatty and parenchymatous degeneration of the renal epithelial cells.

THE TREATMENT OF SCABIES.

SHERWELL (*Journal of Cutaneous and Genito-Urinary Diseases*, November, 1899) states that for twenty-five of the now nearly thirty years of his active dermatological practice he has used the method of treatment which he describes, and that many of his colleagues and most of his students do the same. This treatment consists in the use of the washed flowers of sulphur, and is the cleanest, least disagreeable, and altogether the most efficient method at our command. The patient is directed to take a bath; using a little sand soap over the tougher portions, except in the case of infants. The body and limbs are rubbed lightly with a little of the sulphur powder. A half-teaspoonful is more than enough for each individual. The bed-linen and underclothing of all kinds are changed, and between the sheets or the coverings that come next the person in bed a half-teaspoonful of sulphur is sprinkled. One of the sheets is lifted and a light blow given, which causes enough disturbance of the air to disseminate the powder over the whole internal surface. By repeating this application to the bed every other or every third night, by bathing, and changing clothes in about the same way and at about the same interval for a week, a cure is effected in ordinary cases.

The male acarus is not a burrower. At the time the female has proruptured into the external world from below the epiderm, the male is either dead or certainly functionless.

Few cases or case groups last over the ninth day under this treatment.

THE TREATMENT OF BURNS AND OTHER SURFACE WOUNDS.

REID (*British Medical Journal*, No. 2026, 1899), instead of placing surgical dressings on burns and surface wounds, employs a light wire support which prevents these dressings from coming in contact with the wounds. If the lesion be on a flat surface, as the chest, a stout wire of suitable length is bent into such shape that when placed over the wound it surrounds the latter but rests everywhere on uninjured tissue. On this wire as a basis is woven a wide network of lighter wire, so that a shallow dish of wirework shaped somewhat like the wound, but larger, results. If the wound be of a limb, a cylinder of similar wirework is made in two longitudinal parts which are hinged together. The circumference of the shallow dish and the ends of the cylinder are connected by wrapping some soft material around the thick supporting wire.

When in place, the apparatus may be covered by any dressings the surgeon may choose, and is retained in place by strapping or bandages. The surface of the wound must be kept absolutely clean, being gently sponged twice daily, or oftener if necessary, with some mild antiseptic fluid. To prevent the discharges drying and so caking, the supporting cage is covered with wet lint and the whole with waterproof. If, in spite of precautions, the lymph coagulates, it may be softened by soaking it in olive oil before removal.

The advantages claimed for this method are that it is rational, since no foreign body comes in contact with the raw surface; that it is simple; that the wounds are quickly, easily, and painlessly dressed; that the dressing requires no skill; that wounds heal with extraordinary rapidity, leaving no thick cicatrices; that the method is almost ideally aseptic; and that the treatment is very much less disagreeable than the ordinary one to patients.

The author holds that surgical dressings applied to wounded surfaces are anachronisms and relics of barbarous times, when even more pernicious dirt—*i.e.*, matter in the wrong place—was applied to such surfaces. We now strive to remove foreign bodies from deep wounds; we should strive to remove them from surface wounds also.

HEMATURIA.

GUYON and ALBARRAN (*La Presse Médicale*, No. 84, 1899) report two cases of hematuria of pregnancy; one developed in the seventh month, the blood coming from the right kidney; in the second case the hematuria occurred in the sixth month. In all there are about twelve reported cases. The bleeding may be either vesical or renal, but is practically always associated with a distinct lesion; in other words, the bleeding is not essential. Désnos notes that hematuria of acute rheumatism is characterized by the appearance of bleeding preceding and fol-

lowing the manifestations of the disease in the joints and in the viscera. Sometimes the hematurias are accompanied by colic, and sometimes they are painless. The natural explanation of this bleeding would be to attribute it to the congestion of the kidney incident to the acute poisoning. In four cases of alleged idiopathic hematuria observed by this author, calculus was found; in two by operation.

Tedenat has observed four cases of essential hematuria, in two of which the bleeding was so free and reflex symptoms were so pronounced that calculus was suspected. These two patients were cured by nephrectomy. In another the removal of a small hydatid cyst effected a cure. In an old man, habitual hematuria, lasting for seven or eight months, was due to a tumor in the neighborhood of the kidney, compressing the renal pedicle.

Pusson believes that essential hematuria is excessively rare, and that it will be abolished from the list of diseases with increased skill in microscopic and macroscopic examination. He holds that even the most trifling degeneration in the kidney structure may produce hematuria. Among these alterations he mentions especially that incident to the mobility of the kidney which, occasioning retention, will cause pronounced hematuria. Albarran states that up to 1897 essential hematuria was accepted as an adequate diagnosis in many cases, but since that time a more careful study has shown that most of the cases thus diagnosed were in reality due to movable kidney, to hydronephrosis, or to chronic nephritis. He has found seventeen instances of hematuria due to chronic nephritis.

The vast majority of hematurias are unilateral. In case of nephrotomy there is likely to be a very considerable hemorrhage, which, if the kidney is packed and not sutured, may recur five or six days later when the packing is removed.

Boursier states that hematuria may be caused by either uric or oxalic acid without calculus.

NEURECTOMY FOR THE RELIEF OF INTERCOSTAL NEURALGIA.

WILLIAMS (*British Medical Journal*, No. 2026, 1899) operated on a man who had suffered from intercostal neuralgia for over twelve years. Five years before operation this patient suffered from caries in the dorso-lumbar region, and twice required aspiration for the relief of a small abscess. All the intense pain disappeared at that time, leaving only a patch of pain in the left chest wall. Two years after this the side pain increased, coming on in paroxysms and leaving behind a great amount of soreness. The pain was in the area of the fourth, fifth, sixth, and seventh dorsal nerves. As all medical remedies were useless and the patient was profoundly weakened by his sufferings, and the attacks were becoming more frequent and more severe, recurring several times in each hour, operation was decided on. An incision was made in the line of the spinous processes and three inches to the left side for a length of six inches. The external intercostal muscles were divided, and the nerves were found lying deeply underneath the lower edges of the ribs above, and in a plane much more internal than they should have been. Sections of from two to three inches were removed from these nerves, and the wound was closed and drained. It suppurated freely, and the painful paroxysms were relieved. The patient, however, became at first melancholy, then delirious, finally inarticulate and comatose, and died of bronchitis about five weeks after the operation.

TREATMENT OF CHRONIC ECZEMA.

CHAPIN (*Post-Graduate*, September, 1899) prefers to all of the many salves used in the treatment of chronic eczema that known as Lassar's paste. This consists of salicylic acid 1 part, zinc oxide 25 parts, starch 25 parts, and vaselin 50 parts. In infants with very tender skins this is used in half strength. It is well rubbed into the skin, after which a bandage is applied over the affected part. Scabs and crusts are first removed by sweet oil compresses.

ACUTE DIFFUSE GONOCOCCUS PERITONITIS.

CUSHING (*Bulletin of the Johns Hopkins Hospital*, 1899; quoted from *Treatment*, Nov. 23, 1899) appends the following conclusions to a paper with this title:

1. The gonococcus is capable of causing a specific infectious disease, namely, gonorrhea, and at the same time other less specific pathological conditions.

2. There is experimental proof that in certain small animals the gonococcus can set up acute alterations in the peritoneum homologous with the acute septic inflammations of

serous membranes in man, but differing from these in their tendency to rapid and spontaneous healing.

3. Hitherto there has been wanting conclusive proof that in the peritonitis attendant upon gonorrhea in women the gonococcus was solely or chiefly concerned. The inflammations were regarded as mixed infections and chemical inflammations.

4. The cases reported in this paper bring for the first time convincing evidence of the existence of a diffuse peritonitis caused by the gonococcus.

5. It has been recognized that extension of the gonorrheal infection from the genital organs to the peritoneum may occur in the puerperal state; a similar sequel is shown to be possible during menstruation.

6. Such ascending forms of gonorrhea under ordinary circumstances remain localized in the pelvis, and rarely demand surgical intervention in the acute stage.

7. A general involvement of the peritoneum, such as occurred in the two cases given, must either be rare or unrecognized, and may depend upon some specially receptive condition of the serosa or virulence of the organism.

8. The peritoneum is not more immune than is the pericardium or endocardium to gonococcal infection, and being more exposed, suffers more commonly in females, although the relatively benign course of the disease makes it a rare condition to come to the attention of the surgeon in the acute stages.

TREATMENT OF GONORRHEA WITH SILVER PREPARATIONS.

KOPP (*Munch. Med. Woch.*, Nos. 31 and 32, 1899; quoted in *Treatment*, Nov. 23, 1899) reviews the recent silver preparations advocated for the treatment of gonorrhea. On the whole the results are no better than with the older methods. Argonin and argentamin are not satisfactory; largin is better; but the best are protargol and itrol. Kopp considers that there is no specific drug, and that abortive cures are rare. Nevertheless the endeavor to obtain the bactericidal action of drugs in the deeper tissues by prolonged injections from large syringes (15 to 20 cubic centimeters) in the earliest possible stage of infection, as suggested by Neisser, must be recognized as sound in principle. That posterior urethritis and other complications should not be so frequent as formerly may be due to the rigid regimen and hygiene enforced in test cases. Janet's irrigation has failed as an abortive treatment in outpatients, at all events; in posterior urethritis and chronic gonorrhea it has given satisfactory results—in the former with a weak solution of silver nitrate (0.2 to 0.5 in 1000); in the latter, where there are no gonococci, permanganate of potassium is sufficient.

THE OPERATIVE TREATMENT OF TUBERCULOUS PERITONITIS.

The operative treatment of tuberculous peritonitis has generally been regarded as satisfactory, and yet some figures recently published by WUNDERLICH (*Medical Press and Circular*, Nov. 22, 1899) refer to a rather high percentage of failures. Out of ten patients operated upon four died within three months, three grew worse, and only three at a subsequent examination were found to be in good health. The recorded cases of tuberculous peritonitis now amount to 500; among these 68.8 per cent had ascites, 27.2 per cent had adhesions, and in four per cent suppuration occurred. After three years of observation it was found that recovery had taken place in 23.3 per cent of the first cases, and in 9.8 per cent of the second. Of the suppuration cases nine died out of twenty.

INJECTION OF GELATIN BEFORE OPERATION FOR THE PREVENTION OF HEMORRHAGE.

KARCHESY (*Medical Press and Circular*, Nov. 22, 1899) calls attention to the fact that it has already been ascertained that the coagulability of the blood is much increased by injection of gelatin into the peritoneal cavity. The knowledge was applied practically by the injection of a one-per-cent to three-per-cent solution of gelatin in an average quantity of 200 cubic centimeters subcutaneously for the purpose of producing coagulation in the dilated walls of an aortic aneurism. This method of procedure introduced by Lancereaux was followed by the writer, in his case for the prevention of hemorrhoge in large operations. An hour before the operation 200 grammes of a two-per cent solution of gelatin in .8-per-cent saline fluid was injected subcutaneously into the thigh. The gelatin solution was certainly sterile, and it had been kept in an ice chamber. Previous to using the gelatin was melted in warm water, and injected by means of a syringe holding fifty grammes. The punctures were

made some distance from one another in order to spread out the gelatin over a larger area. After the injection the limb was bandaged to further absorption by pressure. On making the incision the muscular tissues were found to be drier than usual, and they glistened abnormally like wax. The larger arteries and veins bled as before on being severed, the smaller, however, and the capillaries, distinctly less, and soft clot was readily formed on the surface of the wound. Examination of the urine at the close of the operation showed that the gelatin had already entered the circulation. In all cases a heightened temperature was observed.

THE TREATMENT OF SURGICAL TUBERCULOSIS WITH FORMALIN-GLYCERIN INJECTIONS.

HAHN (*Centralblatt für Chirurgie*, 1899; quoted in *Annals of Surgery*, December, 1899) states that though the employment of iodoform-glycerin injections has been widespread, the results have not been satisfactory. He tried iodine-glycerin injections with some degree of success, and two years ago began the injection of formalin. The freshly prepared solution of formalin (a solution of 35-per-cent formaldehyde) was used for this purpose. The results, wherever this solution could be brought into intimate contact with the tubercular focus, were excellent, and in the author's experience this was more effective than other methods. The most suitable field for the injection treatment seems to be the cases of joint tuberculosis which have gone on to suppuration, but in which the soft parts are not yet extensively involved. Formalin injection is also adapted to cases of tubercular empyema. The most convenient mixture is made by adding one to five cubic centimeters of formalin to 100 cubic centimeters of glycerin. Those joints access to the entire surface of which is easy respond better to the treatment. In the order of their accessibility these are: the hip-joint, the knee-joint, and lastly, the tarsal and carpal joints.

That abscesses distant from the tubercular focus should be amenable to treatment by formalin seemed strange to the author, and he was rather astonished to note not only that after one or two injections the pus did not reaccumulate, but in a case of spondylitis the disease was cured quickly with the additional treatment by means of a plaster-of-Paris jacket.

The mode of procedure is as follows: An aspirating syringe of a capacity of twenty cubic centimeters, and capable of sterilization, is used. The needle of the syringe is introduced into the abscess cavity, and this is emptied. The cavity is thoroughly cleansed, if possible without causing hemorrhage, with repeated injections and aspirations of a solution of boracic acid. A quantity of a one-per-cent solution of formalin-glycerin, equal to one-third to one-half the pus aspirated, is then injected. The parts are kept quiet. A more or less violent reaction follows. The size of the abscess cavity increases considerably. Pain may be severe enough to necessitate the use of morphine. The temperature may rise to above 39° C. This reaction subsides in a few days. If necessary a second injection may be used at the end of two weeks. Recovery takes place quickly.

Permanent recovery will occur, however, only in those cases in which all the necrotic tuberculous masses have disappeared. Even if these cheesy granulations contain no living tubercle bacilli, they are always a menace to final recovery. These masses are gradually liquefied by the action of the glycerin and can readily be removed by subsequent aspiration. It is not claimed that every case of tubercular joint disease can be cured by this method. Joints in which the surrounding soft parts had broken down and which were discharging externally were not benefited, as it was impossible to retain the formalin solution in intimate contact with the diseased surfaces for a sufficient length of time. Arthrectomy and resection were often necessitated in this class of cases. Hahn believes that this method of treatment is superior to all similar procedures, particularly to the injection of iodoform-glycerin. He advocates the trial of this comparatively simple method in proper cases before resorting to more extensive procedures.

LANDAU'S TREATMENT OF GONORRHEAL CERVICAL CATARRH.

FEIGL (*British Medical Journal*, Jan. 6, 1900; quoted from *Wien. Med. Woch.*) has treated fifty cases of gonorrheal cervical catarrh by the method introduced by Th. Landau, which is founded on the mutual antagonism between certain microorganisms—in this case between the yeast fungus and gonococci. The author's results have not been so brilliant as those obtained by Landau (v, Epitome, vol. i, 1899, par. 289), possibly

because in all his cases the diagnosis of gonorrhea was confirmed by a microscopic examination of the secretion, while in Landau's the diagnosis was made clinically—the cessation of discharge being no guarantee of the cure of gonorrhea.

The treatment was carried out exactly as described by Landau, ten to twenty cubic centimeters of ordinary fresh beer-yeast, mixed with a small quantity of beer, being injected every day or every few days into the vaginal fornix with a syringe. Before the injection the vagina is cleansed with a douche of hot water and dried with cotton-wool, and after it is given is plugged with a tampon. The average number of injections given to each patient was six, the greatest twenty-one. Though a slight diminution in the number of times the gonococus was found, when repeatedly looked for microscopically, was observed, the gonococcus did not finally disappear even in the cases treated the longest. In twenty-three cases, with scanty mucous or mucopurulent secretion, there was a clinical improvement, the discharge becoming more watery or altogether ceasing; but in more severe cases the treatment almost always failed, and had to be abandoned in favor of older methods. Some cases, especially when the injection was made only once every second or third day, became decidedly worse, with an exacerbation of the inflammatory symptoms. In one case the injections were followed by slight, in a second by severe, parametritis, but in all the others were well borne. Feigl does not, therefore, consider the method to be any improvement on those previously in use, which consisted in rest and cleanliness for acute cases, in the application of some astringent on a Playfair's probe every few days, and the introduction of vaginal tampons soaked in tannin-ichthyol glycerin twice a day.

VEILS AND RED NOSES.

A German physician formulates an indictment of the veil as a cause of acne rosacea affecting the nose, and he relates a number of instances in which young women, otherwise in excellent health, developed this distressing condition consequent upon the habit of riding, cycling, etc., in veils. His view is that the lesion is caused by the friction of the skin against the veil, impregnated with moisture from the breath, the effect being exaggerated by the tightness with which it is necessary to attach the veil when indulging in athletic pursuits. The remedy is obviously to abandon the use of the veil or to wear it loose, anointing the nose with lanolin or other suitable lubricant.—*Medical Press and Circular*, Nov. 22, 1899.

THE PROPER WIRE FOR INTRODUCTION INTO AN ANEURISMAL SAC.

REEVE (*Annals of Surgery*, December, 1899) as a result of experiment decides that the expense of a gold wire seems unnecessary. In order to test the loss to the silver wire through solution while under the action of the current, about thirty centimeters of the above wire weighing .754 gramme was placed within fresh beef and moistened with a normal saline solution, and a current of eighty milliamperes passed for eight minutes. The loss was but .0002 gramme, which for nine feet one hour would be roughly .00576 gramme, certainly not an amount which could be deleterious to the system. And as for remaining in the tissues, silver wire has been long enough used in that way to establish its reliability.

A silver or gold wire, then, about .0085 inch in diameter, and of sufficient temper to retain its coil, would seem to be all that is required to fill, when carrying the positive galvanic current, an aneurism with clots, and is not so thin as to be in danger of breaking.

The author reports a case of aneurism of the aorta into which he passed seven feet of silver-plated copper wire .016 inch in diameter. The patient died in twenty-four hours. The pathologist's report was as follows: An aneurism of the abdominal aorta, two inches above its bifurcation. A wire, irregularly twisted, occupied the center of the sac, surrounded by and mixed with old and recent clot; one end, together with a double loop of wire, passed up the aorta, the looped part reaching about ten inches, and the single strand quite up to the aortic valves of the heart, where it left a spot of ecchymosis. The aneurism was distinctly sacculated; the opening from the aorta into the sac being not over one inch in diameter.

NASAL DRAINAGE FOR EMPYEMA OF THE ANTRUM OF HIGHMORE.

ROALDES (*New York Medical Journal*, Jan. 6, 1900) reports five cases of antrum operation cured by what he terms the Caldwell-Luc method, one having for its essential principles

the cleansing and curetting of the cavity through a large opening in its anterior wall, and the subsequent drainage through a large opening into the nasal passage.

The technique of the operation was carried out as follows: The patient having been chloroformed, the inferior turbinate body of the affected side was attacked with a cutting forceps and its anterior third removed, after which the nasal fossa was firmly packed with gauze and attention turned to the opening of the antral cavity through the canine fossa. The upper lip being everted and well retracted by an assistant, the incision was made through the soft parts, beginning just below the gingivo-labial fold near the frenum anteriorly and extending posteriorly in a horizontal direction back to the root of the first molar tooth. The periosteum was included in the incision, and both flaps were detached from the bone and retracted so that the bony anterior wall was laid bare. A chisel was then used to make an opening into the cavity at the deepest point in the canine fossa, and by means of bone forceps this opening was enlarged so that the finger could readily be introduced and extended anteriorly almost to the nasal process of the maxilla. This gave free access to the cavity for the introduction of instruments and inspection with the eye and finger. The antrum was found to be lined within by a thick growth of polypoid tissue that almost obliterated its cavity. Quite a free hemorrhage occurred at the stage where the antrum was opened, and this tissue was attacked with a curette; but firm pressure by means of a gauze pack quickly checked the flow, and the scraping was systematically continued until the cavity had been deprived of all its interior lining and nothing remained except the bare bony walls. This done, a temporary gauze pack was introduced into the cavity, and the drainage-way into the nose was established as follows: The pack being removed from the nose, the finger was introduced and placed upon that part of the antral wall corresponding to the resected part of the turbinate. With this as a guide, a chisel was placed upon the corresponding point on the side of the cavity and used to break away a part of the bony wall, the opening being made sufficiently large to permit of the free passage of the finger. Any remaining shreds of mucous membrane left on the nasal side were cut away with a biting forceps, so that the artificial hiatus thus made would be in nowise obstructed.

It only remained now to suture over the wound made in the canine fossa and cut off all communication from the mouth. With the lips well retracted and a properly curved strong needle employed, no very great difficulty was experienced in carrying out this step of the procedure. Rather fine catgut was employed in interrupted suture, the mucous membrane and the periosteum being caught up together and brought into firm apposition over the breach in the bony wall. Before the cavity was finally closed, however, the gauze packing was removed, iodoform powder insufflated, and a fresh strip introduced through the nose, so as to avoid any difficulty in its removal at the first dressing a few days later.

The dressing was renewed on the fifth day and the cavity irrigated with warm boric solution. The buccal wound had healed by first intention. The patient remained in the hospital twelve days, at the end of which time she was allowed to go out and resume her usual vocation, being instructed to return to the morning clinics for further treatment. At the end of a few days the gauze dressings were discontinued and the patient was taught to introduce a cannula through the nasal opening and wash out the cavity twice daily. This she did conscientiously, and at the end of six weeks all discharge had ceased, the injected solutions coming out clear, and the empyema was pronounced cured.

Luc has operated upon thirty-three cases by this method, all of whom, except one, recovered without relapse.

EPISTAXIS.

COBB (*Boston Medical and Surgical Journal*, Jan. 4, 1900) quotes Watson's statement to the effect that bleeding from the nose may be a warning, a remedy, or a disease; but holds, himself, that it should in reality be called a symptom, either of some local lesion in the nose or of some general disease elsewhere.

He finds that the effect of a ten-per-cent solution of renal capsule upon the blood-vessels of the mucous membrane is almost magical. Its only disadvantage when used in operations is that subsequent bleeding may occur. The solution is made in water, using the tablets or powders, and is introduced by means of pledgets of cotton which have been soaked in it.

Cobb sums up his paper as follows: The

causes of bleeding from the nose may be local or general. The local causes are more apt to be ulcerations of the blood-vessels, resulting from scabs and crusts on the septum. These may be caused by irritation, as in deflected septum, by foreign bodies (although this is rare), by new growths, and especially by operations for sarcomata. The general causes are plethora and anemia, the hemorrhagic diathesis, acute febrile diseases, vicarious menstruation, disease of the kidneys, syphilis, phthisis, and alcohol. It seems to the writer that the occurrence of severe bleeding should lead to an examination of the kidneys as a cause.

As for treatment, cauterization of the bleeding point on the septum with chromic acid, or galvanocautery, after cocainization, is indicated. Suprarenal extract should be tried, its only disadvantage being the possible renewal of the hemorrhage from the reaction of the blood-vessels. Plugging when resorted to should be done by strips of gauze introduced along the floor of the nose by means of a long forceps; the Eustachian prominence should not be occluded. Packing should be left in from twenty-four to forty-eight hours, and withdrawn with the utmost care.

BULLET WOUNDS IN THE AFRICAN WAR.

MAKINS, in a letter sent to the editor of the *British Medical Journal*, December 30, 1899, from the South African field hospital, speaks as follows concerning the wounds made by the Mauser and Lee-Metford bullets:

"A wounded Boer referred to the Lee-Metford as a 'gentlemanly bullet,' and this remark is equally applicable to the Mauser. The wounds made by them are small, clean, and little disposed to suppurate, and the tendency to suppuration is no doubt decreased by the excellent physical condition of the patients and the healthiness of the district. Shock as a sign has been conspicuous by its absence even in the most serious cases, and gives little or no aid in the diagnosis of visceral injury. Retained bullets are comparatively uncommon, no doubt on account of the fact that most of the men have been wounded in rapid advances. The bullets met with have been little deformed, unless they have struck stones before entering, and I have seen no single instance which would suggest the use of either flattened or so-called explosive bullets among the wounded here. The only large exit wounds have been one or two opposite comminuted fractures.

"Wounds of the soft parts are, as a rule, simple tracks, with but little difference between the aperture of entry and exit; such wounds heal in a few days with no surrounding induration or edema. In cases where vessels of any size are implicated, especially in such regions as beneath the deltoid, gluteus maximus, or the two layers of the calf, considerable deep hemorrhages often occur and are rapidly absorbed, but free hemorrhage from the wound itself is rare.

"Wounds of individual nerves will be a great feature of the campaign. Wounds of the median, ulnar, musculospiral alone, or in various combinations, are common.

"Fractures are for the most part transverse, or the bones are tunneled with a simple track. Comminution in the series seen here is distinctly rare, either in the flat or long bones, and certainly a large number of the wounds have been inflicted well within the 1000 yards range.

"Joint perforations, especially of the knee, are fairly common. The cases left too soon to form any opinion as to their permanent results, but everything pointed to little functional or structural alteration.

"The proportion of wounds of the head is small; some fractures with much bursting at the wound of exit have been met with; naturally many may have been left on the field.

"The small bullet effects the most complete transverse section of the spinal cord. No fewer than ten cases of paraplegia have come down from the front, usually complete, symmetrical, and with total absence of the patellar reflex. Time only will show how complete these injuries are, but one from Belmont died here on the fourth day; the remainder from Modder River have gone down to Wynberg.

"Perforating wounds of the chest have been numerous, producing remarkably slight symptoms. Hemoptysis, slight in degree, persisting one to three days, occurs in one-third of the cases; a few have signs of blood in the pleura, and a few have cellular emphysema. The only constant sign is a want of respiratory mobility on the injured side and some diminution of breath sounds.

"I have seen fourteen wounds of the abdomen; of these, ten have exhibited no serious symptoms, and will probably all get well. The pulses have not risen above 80, and the

only signs have been some local tenderness, rigidity, and deficient mobility of the belly. All came here on the third day after the injury; slight vomiting occurred in some of them before arrival. In two cases the injury probably implicated the kidney, and in one the liver, but in all three the hemorrhage must have been very slight.

"In four instances peritoneal infection had already occurred, three of the patients being Boers, and one an English officer. The latter had suffered an injury to the cæcum; abdominal section was done on the third day, and he is doing well at the end of the week, but still with a discharging wound. Abdominal section was also done for a partly intraperitoneal, partly retroperitoneal, injury to the ascending colon; retrocolic extravasation and emphysema had already occurred. The wound was found and the affected area drained. The patient is still living (eighth day), but will certainly succumb to sepsis from the large foul cavity in his loin. The remaining two were cases of injury to the small intestine. One was too ill for operation. The second was opened, and three perforations in the jejunum were discovered and sutured. Purulent inflammation had, however, already spread as low as the pelvis, and the patient died the day following the operation. All that can be said from this experience is that no patient should be operated upon from the mere fact of apparent traverse of the belly by a Mauser or Lee-Metford bullet. It is possible that if the patients could have been seen sooner operation might have been earlier decided upon in the four cases who were so treated; but the great number of wounded at the front rendered this an impossibility.

"Operations at the field hospitals have been very few in number; at the most, six amputations have gone down to Wynberg, and there can be little doubt that such operations will be comparatively infrequent in this series of cases. The cases, as a whole, started remarkably well. There has been no serious wound infection up to the present—a great tribute to the care with which the dressings have been applied in the hospitals and on the field by the hard-worked officers of the R.A.M.C. In this camp, during the last week, on several occasions the officers were up all night, or went to bed at 12, to rise at 4 A.M. The heat during the day has been very great, 108° to 115° F. in the bell tents in the afternoons of the last few days."

SUPRARENAL EXTRACT IN NASAL SURGERY.

WHITEHEAD (*The Lancet*, Dec. 23, 1899) read before the Leeds and West Riding Medico-Chirurgical Society a paper on the use of suprarenal extract in nasal surgery. Oliver and Schäfer's experimental investigations on the effects of intravenous injections of the extract were mentioned, and papers by Newcomb, Bates, and Swain were referred to. A watery extract of the dried gland, in the strength of ten grains to the drachm, with the addition of twelve grains of hydrochlorate of cocaine after filtration, was recommended. The value of this extract for diagnostic purposes was pointed out, the extreme shrinkage in the vascular erectile tissue of the nose resulting after the local application facilitating examination. In operative work the advantages were stated to be threefold: first, the greater room afforded by reason of the ischemia; secondly, the diminished loss of blood; and thirdly, the freedom of the field of operation from hemorrhage. Cases of partial and complete resection of the turbinate bones and removal of polypi and septal spurs were mentioned, and it was noted that there was no severe reaction, excessive postoperative hemorrhage, or delay in the process of repair.

OBSERVATIONS ON THE DEVELOPMENT OF MODERN SURGERY.

DAVIS (*Pennsylvania Medical Journal*, December, 1899) under this title discusses the development of modern surgery in a thoroughly sensible manner. He calls attention to the fact that the demand of the profession has been for advanced, brilliant, radical operators, not for safe advisers, and the demand has been filled; that operations are no sooner devised than every possible victim is subjected to them; and states that having just gotten over the rage for Battey's operation, the profession is plunged into the midst of an appendiceal epidemic. The important bearing which hemorrhage has in the causation of shock is clearly pointed out. The minor importance of brilliancy in operation as compared to the technique and accuracy and thoroughness in working is shown. The increased popularity for operations in cases of fracture, both recent and old, is alluded to. Davis holds that the vast majority of cases of hernia are more safely treated by the operation than by the truss. Two or three years ago operating as a fashion was

probably at its height; it has lately shown signs of moderating. Most surgeons are willing to wait until they can diagnose appendicitis before they advise operation, and even in gynecological surgery there are signs of a pause. Davis states that it has been a favorite conceit of his that when medicine has reached perfection its name will be surgery.

THE SURGICAL TREATMENT OF GONORRHEAL ARTHRITIS.

O'CONOR (*The Lancet*, Dec. 9, 1899) as a further contribution to a study of this subject contributes brief reports of ten cases treated by arthrotomy. He states that since the early part of 1897 he has practiced arthrotomy with irrigation and drainage in all cases of this malady which have come to him for treatment; that he cannot too strongly advise this procedure as a means of saving the joint structures from prolonged immersion in a particularly destructive exudate. In not a single instance did sepsis supervene, nor were any relapses noted. The joints after treatment remained normal in contour and function. The course of the cases is fully illustrated by the following report: The patient was admitted to the hospital on March 19, 1897, suffering from chronic gonorrhea with arthritis of the right knee. After a prolonged and useless expectant treatment arthrotomy was performed on June 13. One ounce of turbid serum and a piece of thickened synovial membrane were removed. The patient was discharged cured on July 12.

TRAUMATIC ANEURISM OF THE CAROTID ARTERY CAUSED BY A SEWING-NEEDLE.

DOUTY (*The Lancet*, Dec. 9, 1899) reports the following most unusual case. His patient, a man sixty-two years old, suffered in August of 1898 from pain on swallowing. Nearly three weeks later he noticed a lump on the right side of the neck, and the following day began to spit blood, which was bright-red in color and frothy in character. It was generally expectorated in small quantities, but twice nearly choked him by a sudden rush of a pint or more. On examination a pulsating swelling was found on the right side of the neck reaching from the angle of the jaw to the clavicle. Digital examination of the pharynx showed an ulcer behind and below the epiglottis on the right side, from which the blood appeared to come. The carotid artery was tied about a quarter of an inch from the bifurcation. This caused pulsation of the tumor to cease. The patient died the following day. Upon opening the common carotid artery no aneurismal dilatation was found, but on a level with the cricoid cartilage there was an eroded opening through which blood had passed into the surrounding tissues. Just outside—that is, to the right of the artery—on a level with the eroded opening, a sewing-needle was found pointing downwards, and blackened. It is evident that the needle had passed through the esophageal and pharyngeal wall and pierced the carotid artery, producing a traumatic aneurism.

CONTRIBUTIONS TO THE SURGERY OF THE BILE PASSAGES, ESPECIALLY OF THE COMMON BILE-DUCT.

HALSTED (*Boston Medical and Surgical Journal*, Dec. 28, 1899) reports with his extraordinary completeness of detail eight cases of operation on the biliary passages, having been much impressed with the splendid results of operations for gall-stones in the common duct. He summarized some of the more noteworthy instances observed by him in this department of surgery as follows:

Dilatation of the first part of the duodenum caused by constricting adhesions; as the result, perhaps, of the dilatation, an ulcer (a "distention ulcer"—Kocher) on the confines of the pylorus; the ulcer gave rise to a dissecting submucous abscess (chronic) rich in organisms because not reached by the most painstaking sterilization of the stomach. This abscess was punctured during the operation and a fatal peritonitis resulted (terminal infection), although literally only a drop or two escaped, and these were carefully wiped away.

Primary carcinoma of the duodenal papilla and diverticulum Vateri.

First operation: Excision of portions of the duodenum (nearly its entire circumference), pancreas, common bile-duct, and pancreatic duct in order to give the little growth, no larger than a pea, a wide berth; circular suture of the duodenum and transplantation of the stumps of the common duct and the pancreatic duct (Wirsung's) into the line of this suture. Second operation: Cholecyst-cysticoenterostomy by the writer's method for intestinal lateral anastomosis.

Dynamic dilatation of the first portion of the duodenum and of the pyloric portion of the stomach corresponding accurately to the limits of a sharply circumscribed peritonitis; gall-stones in the gall-bladder; hydrops vesicæ. Case full of interest for diagnostician. Beautiful instance of circumscribed dynamic dilatation caused by local inflammation; no adhesion.

Conditions suggesting hepaticocholecystostenterostomy as a possible operation; common and cystic ducts reduced to fibrous cords; dilated hepatic duct and gall-bladder. Remarkable toxic (?) renal colic resembling closely intestinal colic, associated with anuria; colic and anuria entirely relieved by salt infusion.

Choledochotomy performed twice. The gall-bladder, which was shriveled at the first operation, when two stones were probably in the common duct, was large and distended at the second operation, when only one stone occupied the common duct (the ampulla). Hematemesis after the second operation.

Dense adhesions. A small abscess in the midst of the adhesions; muscular coat of the duodenum converted into fibrous tissue; the exposed submucosa resembled gall-bladder so closely that the duodenum was aspirated and opened.

A case illustrating the rapidity with which adhesions after perforation and extrusion of stone can be absorbed. Renal pains resembling intestinal colic (third observation of the kind within eighteen months). Tachycardia, believed to be due to toxemia of some kind (possibly benign embolism), suddenly disappeared during counting of pulse and while preparations were being made for subcutaneous infusion.

A discharge of pus and blood by mouth and rectum during severe gall-stone attack. Two years later, adhesions so extensive and so dense that the common duct was reached by a retroperitoneal route, over the right kidney. A stone in the ampulla had just ulcerated through the wall of the common duct and through its duodenal coverings.

ASEPTIC CATHETERISM.

Beck (*Medical News*, Jan. 6, 1900) holds that catheterism has the dignity of a surgical operation, and that the precautions consist in the sterilization of the instruments, the hands of the surgeon, and the field of operation. The catheter should be boiled, and there should be given a prophylactic injection of a five-per-cent emulsion of iodoform in glycerin before the introduction of the instrument into the urethra. There are, Beck states, three most important virtues required in catheterism — thorough cleanliness, extreme delicacy, and much patience. The same principles should be upheld if the patients are instructed to catheterize themselves. From a scientific standpoint, the trusting of such a surgical procedure to a layman is to be deplored, and such risky commissions should be resorted to only under the most pressing circumstances. Soft catheters should be chosen, and the fact that their usefulness is soon destroyed by repeated boiling should not be allowed to carry much weight in such a serious consideration.

THE RADICAL OPERATION FOR THE CURE OF HERNIA IN INFANTS.

Karewski (*Centralblatt für Chirurgie*, No. 51, 1899) coincides with Fraenkel in believing that the majority of hernias in infants should be treated by radical operation, but differs from him as to the operative technique, believing that it is only necessary to thoroughly free the hernial sac, ligate it, and close the parietal wound by a through-and-through suture to obtain a prompt and lasting cure. He does not insist upon all these cases being operated on, holding that when the truss is well borne and proves adequate, this should be employed. During the period of youth and adolescence very few cases are cured by trusses, and the great majority should be subjected to operation.

INTESTINAL OBSTRUCTION CAUSED BY THE MESENTERIC ARTERY AT THE DUODENO-JEJUNAL JUNCTION.

Albrecht (*Centralblatt für Chirurgie*, No. 51, 1899; quoted from *Virchow's Archives*) reports two cases of death from ileus, apparently secondary to peripheral operations. In both cases the post-mortem examination showed pronounced dilatation of the stomach and of the duodenum as far as that portion crossed by the superior mesenteric artery. There was no organic stenosis. On pulling downward upon the mesentery the artery was stretched so tightly over the duodenum that the latter was firmly pressed against the spinal column.

Albrecht has collected a number of similar cases, all of which show that the obstruction is greatest when the mesentery is dragged in

the direction of the pelvis. In his own cases this dragging was accomplished by an enormously dilated stomach which displaced the intestines downward. Indeed, this gastric dilatation seemed to be the main predisposing factor for such an accident; and the relative frequency with which it follows narcosis is explained on the theory that during the relaxation incident to the use of an anesthesia the intestines are forced into the lesser pelvis and are healed there.

As to prophylaxis, in cases of gastric dilatation, this condition should be treated before operation and the stomach should be completely empty. When the symptoms of obstruction develop the patient should be put in the prone or in the knee-elbow position. If improvement does not follow, the stomach should be completely emptied, and thereafter nothing should be given by the mouth. Schnitzler by this means saved his patient. Ultimate gastroenterostomy may be required.

TUMORS OF THE BONE.

POLLOSSON and BÉRARD (*Annales de Chirurgie et d'Orthopédie*, No. 11, 1899), after a somewhat lengthy discussion of the etiology, pathology, and diagnosis of tumors of the bone, especially commending the *x*-rays as a diagnostic means, call attention to the large percentage of recurrences, after operation for sarcomata. Local recurrence is observed in from forty to sixty per cent of the periosteal sarcomata, in from twenty-three to thirty-five per cent of the central, round-celled sarcomata. Metastasis is most likely to occur in amputation through the continuity of the diseased bones. The chances are one-third less that it will occur when disarticulation is practiced at the next joint above, and are one-fourth less than in this last operation when the amputation is performed entirely above the contiguous joint. As to ultimate cure periosteal sarcomata of the joints give a percentage of from twenty to twenty-five per cent; of the rest of the skeleton, from ten to fifteen per cent. Small, round-celled central sarcomata or malignant enchondromata offer a worse prognosis. When the operation is not successful in preventing metatases, it does not seem greatly to prolong life. It, however, is indicated excepting when it cannot be carried wide of the diseased area.

Berger in this relation reports a case of a pulsatile tumor of the humerus which had caused a spontaneous fracture necessitating the disarticulation of the bone. The growth was found to be an endothelioma. The patient had scarcely recovered from the operation when two new pulsatile tumors developed —one on the forehead, the other in the femur. Clinically these endotheliomata cannot be distinguished from sarcomata. They are, however, frequently accompanied by spontaneous fracture, are rapid in evolution, are pulsatile, and are prone to develop simultaneously in several parts of the skeleton.

Doyen believes that stereoradioscopy is of enormous value in the diagnosis of tumors of the bone.

Forgue states that of nine interventions for osteosarcoma of the extremities, he knows of but three cases of lasting cure—one of seven years, one of six years, and one of one and a half years. All the others died of prompt and inoperable recurrence.

THE IMMEDIATE HERMETIC SEALING OF WOUNDS.

MARCY (*Columbus Medical Journal*, Dec. 5, 1899), after a preliminary discussion of this subject, states that the object of the surgeon should be to make and maintain a wound aseptic. Like structures should be coaptated and held at rest by buried aseptic, absorbable sutures, and the technique is completed by the application of a dressing to prevent subsequent infection. This is secured so simply and easily by iodoform collodion, strengthened by a few fibers of cotton, that this dressing reaches an ideal completion. It is fluid-proof, in that no exudate can escape from beneath it, and as a consequence it is germ-proof, in that by no means is it possible that any foreign material can enter the wound. Beyond this, it holds in even coaptation and at rest with a certain fixity of support the approximated parts. Iodoform is soluble in it, and under certain conditions it is inhibitory to the development of micrococcus albus in the proliferating epithelium, and for this purpose is quite as valuable as the silver salts, which are much more difficult of application. To one who may doubt the effect of a potent agent seemingly locked up in a collodion film, we need only to cite the powerful desiccating effect of cantharidal collodion. A wound made and maintained aseptic in well-vitalized structures, held at rest in easy coaptation by buried tendon sutures and sealed with iodoform collodion, will not suppurate, and will be followed by a non-inflammatory primary union. The fear, the anxiety, the constant supervision and

watchfulness of the wound by nurse and attendant, are entirely abrogated. Subsequent dressing is of no avail except to keep the parts from extraneous injury. The work of the surgeon for good or ill has its finality at the period of manipulative intervention.

THE TREATMENT OF DYNAMIC ILEUS BY ATROPINE.

BATSCH (*Centralblatt für Chirurgie*, No. 51, 1899), after calling attention to the two forms of what he terms dynamic ileus, one due to paralysis, the other to spastic contraction of the muscular coats of the bowel, states that atropine is the drug which is indicated for physiological reasons. It should be given in full doses, and he reports two cases treated by one-fifteenth of a grain administered hypodermically.

SUTURE OF WOUNDS OF THE HEART.

ELSBURG (*Journal of Experimental Medicine*, vol. iv, Nos. 5 and 6), as a result of a historical and experimental study, states that suture of wounds of the heart, as a final resort, is an operation worthy of consideration in some cases and often justifiable; that this procedure in animals and also in man is devoid of the danger of a sudden arrest of motion due to the manipulation, unless Krönecker's coordination center be injured. The suture should be an interrupted one of silk, applied in most cases so that the epicardium and superficial layer of the myocardium are the only ones penetrated, and tied when possible during diastole. The laboratory experiments on which these conclusions are based are given in detail.

PERINEAL URETHROSTOMY.

PONCET (*Lyon Médicale*, No. 53, 1899), who described in 1892 what he termed a new operation—*i.e.*, the formation of an artificial hiatus in the perineum for the relief of incurable stricture—has been able to trace twenty-three cases thus operated on.

The operation consists in dividing the urethra transversely across and suturing it to the perineal skin. This is applicable only to strictures caused by extensive loss of substance, and which are hence quite incurable. For some time after operation a sound has to be passed to prevent contraction. The inconvenience resulting is extremely slight, and the bladder remains continent.

GUNSHOT WOUNDS OF THE REDUCED-CALIBER RIFLES IN THE SANTIAGO CAMPAIGN.

LA GARDE (*Boston Medical and Surgical Journal*, Jan. 18, 1900) reviews in detail the conclusions summed up at the end of the experimental work at Frankfort arsenal, and compares them with his observations in the Santiago campaign, as follows:

The experimental evidence showed the shock impressed upon a member increases with the velocity, whether a bone is traversed or not. It is always greater with the leaden projectile.

The explosive effects at very short range are about the same for the two projectiles. They continue, however, up to 350 yards with the smaller bullet and cease at about 200 yards with the leaden bullet. The infrequency of explosive effects should be attributed (*a*) to the fact that the vast majority of the wounds were inflicted beyond the zone of explosive effects, and (*b*) since explosive effects are chiefly to be noted in the vital parts contained in rigid walls, like the brain, or in those organs containing much fluid, like the heart, liver, spleen, and the alimentary tract, these wounds with explosive effects, so destructive to tissue, were numbered among the dead. The experimenters found that the smaller frontage of the jacketed bullets causes them to inflict injuries resembling subcutaneous wounds when the soft parts alone are traversed, and that the small wounds of entrance and exit and the narrow track of the missiles were favorable circumstances to rapid healing. The truth of this statement is borne out by the experience of all surgeons in the Santiago campaign. Flesh wounds healed very rapidly and kindly.

As to hemorrhage, Johann Habart, of the Austrian army, who paid special attention to this subject, states that "the blood-vessels are seldom torn by the small jacketed bullet, and that when wounded they are not closed so easily by coagulation as those severed by leaden projectiles." Some writers deduce from this statement that alarming or fatal hemorrhage would be more frequent in future battles. The experiences of the surgeons with the line before Santiago do not confirm these apprehensions. Of the 1400 wounded, not one died of external hemorrhage. The brachial and femoral were tied a few times in the base hospital for diffuse aneurism. One case of wound of the subclavian was operated on in New York and died after the

operation. There were five cases of gangrene from injury to blood-vessels which required amputation.

Injuries inflicted outside the zone of explosive effects upon the shafts of the long bones always show less comminution with the small bullet of hard exterior. The fissures are often subperiosteal and the fragments are larger. This was true of the Mauser bullet wounds in Cuba. It was seldom necessary to open up the wounds for the purpose of taking out loose fragments of bone.

Beyond the zone of explosive effects the projectiles of hard exterior almost invariably perforate or gutter the joint ends of bones, and the lesions of the articulations are never so grave.

The projectiles of hard exterior lodge less frequently in the tissues than the old leaden bullet. It was learned through the Spanish surgeons at the Spanish hospitals in Santiago, after the surrender, that our Krág-Jorgenson bullet had not lodged in their wounded as often as their Mauser bullets had lodged in our men, the reason being that we were on the aggressive in a region practically unknown to our troops, whilst the Spaniards were familiar with the ground over which we must make the advance, and as trained soldiers their officers had carefully studied the range at every point. With this valuable information in their favor they were in a position to commence an effective fire at remote ranges, say at 2000 yards and more.

There is another explanation which may be gathered from the difference in the energy of the two bullets at remote ranges. Our bullet, being larger and heavier than the Mauser, has greater energy at 2000 yards, and it will penetrate farther in the remote ranges than theirs. Again, ricochet shots, from the thick underbrush and broken ground, undoubtedly favored a certain percentage of lodgment. Many of the officers attributed the lodgment of projectiles to the use of defective ammunition by the enemy. This point was so susceptible of proof that experiments were instituted to show the relative penetration of the Mauser and Krág-Jorgenson rifles. The tests were made in large blocks of well-seasoned yellow pine fired into, across the grain, three feet from the muzzle. The penetration of the Krág-Jorgenson ammunition was twenty-four inches plus, whilst that of the Mauser ammunition exceeded ours by nearly ten inches, a demonstration which at once set at rest the idea of lodgment from the defective ammunition of the enemy.

The old leaden bullet often leaves fragments of lead in the foyer of fracture. As the projectiles of smaller caliber are less apt to lodge or to carry foreign substances into the wounds fewer cases of suffering are found due to the remote effects of unextracted foreign bodies. The frontage of the jacketed bullet being much less, and the fact that it does not lodge as often as the larger leaden bullet, will contribute to increase the percentage of recoveries in gunshot wounds of the lungs. Owing to diminished frontage the new bullet will cause less disfigurements in wounds of the face.

The projectiles of hard exterior are more humane than the old bullets, resections and amputations will not be so often required hereafter, soldiers will be more often restored to the state of useful members of the community instead of cripples and pensioners, and in point of economy the new projectile confers a great advantage. This last conclusion is also in accordance with the experience in Cuba.

SURGERY IN RELATION TO PERSONS OF ADVANCED AGE.

WARD (*Western Medical Review*, Jan. 15, 1900), in a paper on surgical operations on people of advanced age, states that the first problem to be considered in discussing this question is, what is considered an advanced age? While it is generally conceded that some persons are still in their prime at the age of sixty years, yet this will not prove true in the majority of instances. The most prominent factor in forming an opinion regarding the ability of old people to undergo surgical procedures is that persons who have lived to the age of sixty years have by this proof of vitality given good reasons for an indefinite expectancy, even though the ordeal which they must undergo is such as might prove fatal to the younger patients.

The writer emphasizes the fact that old people do, as a rule, bear remarkably well major surgical operations, provided, of course, that surgical shock is reduced to the minimum. When it is a question of great loss of blood they would be more liable to succumb than younger people. If the foregoing statement is tenable, there is given to the surgeon a larger field of usefulness than has been heretofore generally recognized. People of ad-

vanced age suffering from tumors and other surgical conditions are frequently advised by their medical attendant that their age contraindicates surgical interference. It is essential, therefore, that surgeons should disseminate the facts, the result of their experience, in order that old people may have the benefit of surgery if surgery is wise.

Ward states that his personal experience does not differ from the experience of other operators, but at the same time he has had a fair number of quite old people under treatment for the removal of large and frequently very complicated tumors, and other diseases which required major surgery, and the results have been as good as could have been expected were the patients younger.

The author reports three cases (operated on within the last four months), which are referred to merely to emphasize the truth of the assertion that frequently patients suffering from similar ailments and under even more favorable conditions are sometimes advised against surgery, and lives are thereby sacrificed when they might be greatly prolonged.

INVERSION OF THE UNCUT APPENDIX.

BALDWIN (*Medical Record*, Jan. 20, 1900) has practiced inversion of the appendix in considerably more than one hundred cases, eighty of which, he states, were operated on in the last six months. He has practiced inversion not only in cases in which the operation has been made for appendicitis alone, but also in the great majority of cases in which he has opened the abdomen for any reason whatever. Indeed, this has become a routine procedure with him, those cases alone being excepted in which the appendix is found atrophied, or in which the preceding operation has been of such a character as to render it unwise to prolong operative procedure by even the two or three minutes necessary to secure the inversion. He has found a healthy appendix in less than ten per cent of all abdomens which he has opened; in all the others there was thickening of the appendix or more or less obliteration of its lumen or adhesions.

The technique of inversion is very simple. The author states that he has done the operation very many times to the delight of visiting surgeons. The appendix is freed from its adhesions and brought up into view in the usual way. The tip of the appendix is held by an assistant with one hand, while with the thumb and forefinger of the other the colon is supported just below the origin of the appendix. With a ligature carrier a catgut ligature is then introduced at the base of the appendix, so as to include the mesoappendix, care being taken to embrace the small artery that runs along close to the appendix. The mesoappendix is then ligated, the ends of the ligature being left long. With scissors the mesoappendix is severed just beyond the ligature, and the tissues constituting it are then seized either with fingers or forceps and stripped off from the appendix from the base to the tip. This is usually accomplished with a single effort, but occasionally they will have to be removed in pieces. Not infrequently, and quite usually when operating on an acutely inflamed appendix, great thickening of the peritoneal and muscular coats will be found present. These coats will be so infiltrated that inversion will be found impossible. In such a case a longitudinal incision can be easily made with either knife or scissors, cutting through these two coats down to the mucous membrane. This having been done, the thickened coats are very easily peeled off, leaving merely the mucous membrane intact, which is so thin and soft as to offer slight obstacle to inversion. Not infrequently, however, the distal extremity of this mucous membrane tube is obliterated as a result of previous inflammatory attacks. In such an event the obliterated end must be snipped off with scissors before proceeding to the next step. Care should be taken, however, not to open into the lumen of the tube.

The appendix having thus been prepared for inversion, the tip is seized between the thumb and forefinger of one hand and inverted by pressing upon it with the blunt end of a patent-eyed needle. The maneuver is accomplished by a manipulation somewhat similar to that employed in putting a fishworm on a hook. The tip having been inverted for about the length of the needle, an inch or more, the needle is removed and an ordinary long probe substituted. With this the inversion is completed in an instant. If, as the probe is being introduced into the colon, carrying with it the appendix, it meets with a fold offering obstruction, it should be withdrawn and the rest of the inversion completed with the fingers. This is accomplished without any trouble whatever. Inversion now being complete, one end of the ligature which has been previously used is threaded into the needle and a single stitch taken

across the opening in the bowel, which marks the point of disappearance of the inverted appendix. If it seems desirable two stitches can be taken. The catgut is drawn through until the stump of the mesoappendix is brought up against the opening, and then by tying the two ends the operation is completed.

The only possible objection to the operation is that no specimen is secured to display to the patient and his friends. This objection, however, is of no importance, when considered in connection with the manifest advantages of inversion over opening the bowel.

The operation of inversion is made in a very few moments. There is no hemorrhage connected with it, and there is no danger of infection. When made in connection with other operations requiring opening the abdomen, it can hardly be said to have any mortality whatever.

Reviews.

A Practical Treatise on Materia Medica and Therapeutics. By Roberts Bartholow, M.A., M.D., LL.D.

New York: D. Appleton & Company, 1899.

When a book reaches its tenth edition, having been in existence for a period of twenty-three years, it is not the function of the reviewer to criticize the method of its make-up, or the manner in which the author has discussed his subject. It is his duty to examine its pages with the object of determining whether in the process of revision sufficient care has been exercised to bring the book up to the latest scientific therapeutics. We have therefore examined the present volume with the purpose of determining how carefully it has been prepared for the press, and bearing in mind constantly the success which it has attained, and therefore the value of the text in general, we have met with many paragraphs which have evidently slipped the eye of the reviser. Thus the article upon transfusion of milk does not represent the attitude of the profession toward this method at the present time, as milk transfusion is very distinctly a thing of the past. So, too, peritoneal transfusion cannot be considered as being "still *sub judice*." Then, again, we find articles referred to as "recent" which were published as long ago as 1883; for example, on page 31, where the intravenous injection of blood is considered. We do not agree with the author in his statement that the injection of testicular juice "remarkably enforces the vital resources," nor do we believe that the individual "declining into the decrepitude of old age" receives a new instalment of life from its use.

An examination of the important subjects of ether and chloroform shows that they are dismissed with very superficial consideration; while other subjects of far less importance are given equal space. Thus the article upon the physiological action of chloroform covers but eleven lines, while that devoted to the physiological action of barium chloride covers almost two pages. The description of the physiological action of ether is also too brief, and is incomplete. On page 683 we are told that pilocarpine is "contraindicated in all affections of the gastrointestinal mucous membrane, and in weak heart due to disease of its muscular substance or of its contained ganglia or of the valves." In the next sentence we are told that it is a remedy of great value in cardiac dropsy provided the contraindications above mentioned do not exist. It is difficult to imagine a condition of cardiac dropsy not dependent upon some such cause, and therefore the first sentence practically contradicts the second. More space is devoted to tobacco than to chloroform; and the statement that tobacco contains nicotianine is made, although no substance of this character exists, as has been pointed out a number of times. These are some of the faults which can be found in this justly celebrated book, which has held high rank in professional esteem. The features which won for it its great reputation still remain, and in pointing out these flaws it is not our intention in any way to suggest that the book is not worthy of careful consideration by the physician who desires an authoritative work upon this important subject.

Refraction and How to Refract. Including Sections on Optics, Retinoscopy, and Fitting of Spectacles and Eye-Glasses. By James Thorington, A.M., M.D. Illustrated.

Philadelphia: P. Blakiston's Son & Company, 1900.

This is a most excellent manual, dealing with the subjects which are described in the title. There is scarcely a page which does not contain an illustration showing how the various instruments used in ophthalmic work should be employed, and what is better still, the language used by Dr. Thorington is such that his directions are easily understood and readily carried out. The first chapter of the

present volume opens with the consideration of optics. The second describes the standard eye, acuteness of vision, convergence, the angle gamma, and the angle alpha. Then follows a chapter upon the ophthalmoscope, upon emmetropia, hypertropia, myopia, astigmatism, and retinoscopy. The remaining chapters deal with the ocular muscles, and the various drugs which produce cycloplegia; refraction and the consideration of lenses, spectacles, and eye-glass frames. There are not less than two hundred illustrations in the volume, of which thirteen are colored.

As a first-rate working manual, we believe this book can be cordially recommended.

PYE'S SURGICAL HANDICRAFT. Fourth Edition. Revised and Edited by Bartram Rodgers, B.A., M.D. Boston: John White & Co., 1900.

The third edition of this work appeared eight years ago. Because of the many advances made in surgery a revision was necessary, and this has been done by Rodgers.

In the treatment of hemorrhage and its arrest we note that some of the modern applications, such as suprarenal capsule, cocaine, and antipyrin, are not mentioned. The section on bandages and knots is scarcely adequate, and too much space is devoted to the handkerchief bandage. The American surgeon naturally misses the description of the extension apparatus customarily applied here for the treatment of fracture of the leg; and the splints portrayed seem somewhat clumsy and obsolete.

It may be said in general of the illustrations that they are not idealized. In the chapter on antiseptic dressing of wounds the confidence placed in carbolic acid, the directions given for the cleaning of sponges so that they may be used for a second operation, the space devoted to the description of sal alembroth, and the double cyanide of mercury and zinc, do not suggest that the editor has brought the work up to modern requirements. The section devoted to surgical emergencies is excellent, and the same can be said in general of the chapters on anesthetics. It is, however, rather surprising, in view of the enormous popularity of cocaine and eucaine in the performance of even major operations, to find this whole subject dismissed by a short paragraph which is doubly misleading. In the section devoted to the use of catheters it is stated that a soft instrument after use should be wiped free from grease and then soaked ten minutes in carbolic acid solution one-to-twenty, and well washed with water and dried before being put away. The only objections to this method are that it is absolutely inefficient, and that one application hopelessly ruins all woven instruments and greatly deteriorates those of soft rubber.

There are so many faults, both of commission and omission, in this work that it cannot be recommended as a safe guide.

GENERAL AND LOCAL ANESTHESIA. By Aimé Paul Heineck.
Chicago: G. P. Engelhard & Co., 1900.

In spite of the enormous literature on this subject, it is one of such importance that a new book, if accurate, is not amiss. The present work, comprising 124 pages, is in many respects thoroughly commendable. In the choice of anesthetics, despite the unfavorable showing in the mortality statistics against chloroform, this latter drug is given the preference by the author, under circumstances which would to the majority of surgeons suggest the use of ether, as for instance in abdominal operations, and in operations on the neck. Very properly the administration of the chloroform with the patient in a sitting or a semirecumbent posture is regarded as extremely dangerous. In preparing the patient for anesthesia, it is stated that an existing bronchitis should be palliated or cured; that if the examination of urine reveals the presence of albumin and casts, the patient should be placed on a milk diet for a few days previous to the operation; that the nasopharyngeal passages should be thoroughly cleaned, any existing infection being cured; that an antiseptic mouth-wash should be used; that a glass eye or an ankylosed joint should be previously detected. A hot bath should be taken the day before the administration, the bowels should be evacuated on the night before, followed by an enema on the morning of operation. The night preceding should be made restful by hypnotics if necessary. The bladder should be emptied before operation, and when there is intestinal obstruction the stomach should be washed out before administering the anesthesia.

These preparations, though much more elaborate than common, are based upon sound reasoning. As an added precaution the anesthetist is advised to always assure himself of the purity of the drug which he is going to administer, and give the anesthetic upon an empty stomach.

Even the experienced anesthetist can read this work with profit, while to the student

and the general practitioner it is likely to prove of the greatest practical service.

The latter part of the work is devoted to a minute and detailed description of the methods of accomplishing local anesthesia.

BACTERIOLOGY IN MEDICINE AND SURGERY. A Practical Manual for Physicians, Health Officers, and Students. By Wm. Hallock Park, M.D., Assisted by A. R. Guerard, M.D.
New York and Philadelphia: Lea Brothers & Co.

This book has for its main object the practical application of bacteriology to every-day work and the sciences. Laboratory technique is given in such detail as to make it possible for the physician to conduct the major part of the work in his own office, and the methods used for the identification of the typhoid, tubercle, and diphtheria bacilli have been given with especial fulness, as have the methods for examining the discharges. In the table of contents, chapters are found devoted to such important subjects as the practical disinfection and sterilization of houses, the use of animals for diagnostic and test purposes, and bacteriological examination of water and air. The appendix is devoted to a brief description of a few representative pathogenic microorganisms which are not bacteria, including the actinomyces, the plasmodium malariæ, the ameba coli, and the microorganism of smallpox and rabies.

The book is well illustrated. It shows an excellent knowledge of the subject and should be useful to the modern, scientific practitioner.

Correspondence.

LONDON LETTER.

BY RAYMOND CRAWFURD, M.A., M.D. OXON., M.R.C.P. LOND.

At the Obstetrical Society of London Dr. Herbert Spencer read a paper on "Treatment of Rupture of the Uterus." He dealt chiefly with his own experience of packing the rent *per vaginam* with iodoform gauze. Incidentally he summarized his views on the whole position as follows:

1. Abdominal section is rarely required, and almost solely in cases where the fetus has passed completely or in great part into the peritoneal cavity. It should be performed rapidly under local infiltration anesthesia, and should be followed by flushing of the peritoneal cavity with normal salt solution and by suture of the tear, if possible; or if this be not possible, by packing the tear with iodoform gauze and draining by the vagina or abdomen.

2. Abdominal hysterectomy is hardly ever necessary; when the broad ligaments are so much damaged as to endanger the vitality of the uterus, vaginal hysterectomy should be performed.

3. All incomplete and most complete tears implicating the broad ligament should be treated by packing the rupture *per vaginam* with iodoform gauze after removing clots and fluid blood.

The importance of a laceration depends not upon its extent in the uterus, but on the extent of the laceration of the vessels and tissue of the broad ligament. Dr. Spencer was alive to the fact that there must be some danger of iodoform poisoning, but he considered the danger less than from cyanide gauze, or sterilized gauze that could hardly remain aseptic. Dr. Horrocks was in favor of opening the abdomen and stitching the rent, but there was a general agreement as to the risks of this procedure, and the futility of anything short of firm union of the whole of the tear by firm suture.

A paper read by Dr. Edmunds at the Ophthalmological Society, on "Experimental Exophthalmus and Enophthalmus," is of interest in connection with the symptomatology of Graves's disease. It has always been difficult to find an etiological place for this feature. The early observers, trusting to post-mortem observations, considered that it was due to overgrowth of the postorbital fat, but they did not attempt to account for this overgrowth. Edmunds shows that stimulation of the cervical sympathetic produces exophthalmus and widening of the palpebral fissure, with at first increase and afterwards decrease of the intra-ocular tension. Division of the sympathetic produced the opposite effects, and had been employed with limited success by Jaboulay and others in the treatment of Graves's disease by surgical methods. There is no doubt that enophthalmus does occasionally follow section of the cervical sympathetic, but the danger of the operation and the uncertainty of the result rule it out of court. Edmunds also showed by experiments on monkeys that feeding with thyroid substance might also produce exophthalmus, but not invariably; from this he infers that the eye symptoms are secondary to the goitre. Yet the eye symptoms are often seen with-

out the detection of any goitre, and for my part I have always held that the cardinal symptoms are probably all direct effects of one and the same exciting cause in the central nervous system. It would be interesting to see what would be the effect of division of the sympathetic in a case of thyroid feeding.

Dr. Begg, on the strength of his experience in China, advocates the use of salol to control the irritation and prevent suppuration of the pocks in variola. His attention was first directed to the matter by observing that a mosquito bite in a patient who was taking large doses of salol was not followed by the characteristic local reaction of swelling and irritation. Accordingly he experimented with the drug in cases of irritable skin disease, and finally in cases of smallpox. He found that it checked the irritability, and often aborted the vesicles. In a case of confluent smallpox he had succeeded almost completely in averting suppuration. He had not found it necessary to exceed one drachm a day given in doses of fifteen grains every four hours, and the continued use of the drug appeared to have no ill effect.

Messrs. Ballance and Cumberbatch made some very interesting observations to the Royal Medical and Chirurgical Society on the mastoid operation for the cure of chronic purulent otorrhea. Mr. Ballance's operation for the intractable cases of otorrhea consists of two stages: (1) An operation for removal of the disease—namely, the complete mastoid operation; and (2) an operation for closing the wound—by the epithelial grafting of the bare bone cavity. Ballance lays it down that the cure of chronic otorrhea cannot be effected by a simple opening into the antrum; also that the complete mastoid operation, throwing the iter, attic, and tympanum into one cavity, is unjustifiable in acute cases. Both he and Cumberbatch were inclined to depend on experience rather than on any hard and fast rules of practice in the selection of cases appropriate for operation. Cumberbatch has evolved certain general categories. He holds that radical measures are inexpedient: (1) In cases where the greater part of the membrana tympani has been destroyed, and the mucous lining of the tympanic cavity is much hypertrophied, but where there is no obvious bone disease. (2) In cases in which there is frequent recurrence of the discharge on the slightest provocation, but in which the discharge is readily arrested temporarily; in these cases there may be a permanent opening of the membrana tympani, or one that closes as soon as the discharge ceases. (3) In cases of discharge from both ears, but without affection of hearing, and without symptoms calling for operation, apart from the discharge. On the other hand he would advise the complete operation: (1) In cases of recurrent but tractable otorrhea, in which the onset is invariably preceded by malaise, slight headache, rise of temperature, and occasionally mastoid tenderness or discomfort. (2) In cases that have given no trouble for years but suddenly develop labyrinthine symptoms, suggesting either extension to the labyrinth or an accumulation that exerts pressure in that direction. (3) In cases in which the usual methods of treatment failed, and inspection shows masses of sodden epithelium that may be syringed away in flakes. (4) In cases in which there are periodic attacks of mastoid pain long after subsidence of active mischief in the ear, and where by the exclusion of neuralgia one is led to the diagnosis of sclerosing osteitis. The success of the operation in skilled hands is the justification of its employment.

In the *British Medical Journal* of January 20, 1900, will be found some remarks by Dr. Wright and Dr. Leishman on the results which have been obtained by the antityphoid inoculations. It is of course impossible to reproduce even the material parts of this important communication in their entirety, as much is statistical, while a good deal of space is assigned to the methods which have been employed in the preparation of the vaccine. The comparison of the disease statistics among the inoculated and the uninoculated is remarkable enough, but much more so when one takes into account the unfavorable conditions under which the inoculations were performed. The work was undertaken by the authors when serving with the Indian Plague Commission, so that it could only be irregularly prosecuted while *en route* from place to place. Moreover, as sufficient vaccine material could not be taken out from England, that employed had to be prepared and standardized under the most unfavorable conditions. Even with these statistics, which beyond question would be vastly improved under favorable conditions, we find a reduction of cases from 2.5 to 0.9 per cent, and a diminution of mortality from 0.35 to 0.2 per cent. It appears that the annual average of cases of typhoid fever in the British army in India is 1800, and the number of deaths 460, so that applying the

statistics to these numbers there would be an annual saving of over 1000 cases of enteric fever, and of nearly 200 lives. In most of the cases the inoculated men were young soldiers who had recently arrived in the country, and therefore were in a condition of maximum susceptibility, while the uninoculated were the more seasoned older soldiers of less susceptibility. In some cases, too, the inoculation took place in the presence of an epidemic, and, as could be shown to demonstration now and again, in patients during the incubation stage of the disease. The difficulty in getting a wider application of antityphoid inoculation lies in the patients themselves. There is one principle of reasoning that a medical man may always rely on his patient to apply to any question of therapeutics, and that is the vicious generalization from a single instance. Thus in the statistics before me, in one battery of artillery there was but one case of typhoid fever, and that in an inoculated patient. The inevitable conclusion to the lay mind is not that the good health of the battery was due to the inoculations, but that the uninoculated are more safe than the inoculated. There is some evidence to show that typhoid inoculations convey some degree of immunity to malarial fever. In one regiment 121 men had previously suffered from malarial fever; 111 had been quite free since inoculation, and the remaining ten had suffered but slightly; only two who had not suffered previously had suffered since, and that slightly.

A number of the troops that have recently left for South Africa were inoculated before landing. A large field of statistics should shortly be available from this quarter, unhappily, however, vitiated by the manifold casualties of warfare.

PARIS LETTER.

By A. R. Turner, M.D. (Paris).

The question of sanatoria is occupying the medical attention, and at last an official inquiry into this subject is to be carried out. Drs. Letulle, Landouzy, and Lannelongue have been chosen as members of a commission which is destined to undertake a journey through France and Switzerland in order to examine the different sanatoria and make out a report on their condition. It had been thought that this would take place at the end of this month (February), but it has been decided otherwise, and their departure has been put off until the latter part of March. The commission will first of all visit the sanatoria situated in the neighborhood of Lyons, such as Lauzun, and then enter Switzerland and examine the sanatoria at Davos.

In my last letter I spoke of cacodylic acid and its use in all wasting diseases. This drug has acquired quite a vogue; it has been administered with perhaps not quite sufficient knowledge of its action and the accidents it may produce. In a recent meeting at the Academy of Medicine Dr. Gautier, professor of chemistry at the Academy of Medicine, described the morbid symptoms observed in some cases, such as colic, intestinal disorders, etc. There is an odor of garlic noticeable in the breath, the skin, and other parts of the organism. Albuminuria may also be brought on by too long an administration of cacodylic acid. No such symptoms are observed when the drug is administered hypodermically.

Cacodylic acid answers to the following formula: $2As(CH_3)_2O(OH)$. When a reducing agent is brought to bear upon it, oxide of cacodyle $As_2(CH_3)_4O$ is formed, a chemical body which is very poisonous and with an odor of garlic. This fact furnishes the explanation of the untoward symptoms mentioned above, which are due to the formation of a small amount of oxide of cacodyle on account of the reducing action of various bodies in the intestinal canal. Dr. Gautier, though admitting that Dr. Danlos may obtain good results from administration by the mouth, has decided that the hypodermic system is safer.

The following are the chemical characteristics of cacodylic acid: A white crystallized body, without odor or acid taste, at least at first. When pure it should saturate, for 100 parts, 28.99 parts of caustic soda (phthalein should be used as a reagent). With an excess of a solution of calcium or barium oxide there should be no precipitate (no oxalates, arsenites, or arsenates); with nitrate of silver no precipitate, or a slight change due to a small amount of chlorine. No precipitate is formed when shaken up with a mixture of salts of ammonia, ammonia, and sulphate of magnesia. When completely pure, zinc has no reducing action when heat is not added. Pure cacodylic acid, five-percent solutions, saturated with caustic soda, may be used. It is just as well, however, to use ordinary cacodylate of soda:

Pure cacodylate of soda, 6 grammes;
Carbolic alcohol, 10 drops;
Distilled water, 100 grammes.

Boil a few seconds, bring up to 100 cubic centimeters, and place in a sterilized bottle.

Each cubic centimeter contains about five centigrammes of pure cacodylic acid, which is the usual dose in twenty-four hours for an adult. This dose may be doubled generally, but a rest of a week or more should be observed after eight to ten injections. If there is a tendency to bleeding, and in women at the menstrual period, the drug should be suppressed.

Hydrogen peroxide is being much more used in the surgical services in Paris than it was three or four years ago. Recent bacteriological researches have shown that in a large number of infectious affections, anaerobic microbes play an important rôle; moreover, even with the ordinary agents of suppuration it seems to be demonstrated that most microbes are more readily anaerobic than aerobic. Dr. Terrier has employed hydrogen peroxide in abscesses, when there is a tendency to gangrene. Dr. Jalaguier has used this antiseptic in cases of periappendicular inflammation, with internal suppuration. Suppuration is arrested much better than with boracic acid water or chloral solutions. Dr. Albarran, a well known specialist in urinary affections, admits that in gangrene observed in urinary infiltration there is often to be found anaerobic germs, and that hydrogen peroxide is therefore indicated. In perirectal infections, according to Dr. Quénu, in pulmonary gangrene, oxygen is a powerful bactericide. The solution used varies from 6 to 12 volumes for 100 of water.

A recent article in the *Presse Médicale* published by M. Masbrenier, on the treatment of delirium tremens, shows what are the modern tendencies on this subject. In the first part of this article mention is made of opium and chloral, drugs that until recently were extensively used. Lancereaux insists upon the use of chloral, three grammes being given in moderate cases, and in other more severe cases as much as nine or ten grammes in twenty-four hours. Magnan and Serieux consider trional a much safer drug, as it is supposed to have no action on the heart. Bromide of potassium and anesthetics should be added to this list. All this treatment consists in acting on the symptom and not on the real cause of the condition. Alcohol is given because it is supposed that its suppression is the principal cause of delirium tremens.

Another therapeutical method has been tried, the first principles of which seem to have been established by Philadelphia physicians. Two series of patients were treated either by opium or by expectation and cold drinks. Experience showed that the latter treatment seemed to have a better effect. Jones and Vulpian had already recommended digitalis, and Trousseau used it ten years and only lost one patient. Strychnine has been thought to be useful on account of its action on the nerve cell. Doses of eight milligrammes of strychnine at one dose have been administered. Dr. Letulle reported several recoveries due to the use of cold baths. Dr. Quénu tried injections of serum in three cases, and the results were most favorable.

The treatment of delirium tremens can therefore be summarized as follows: Tone up the heart by the use of caffeine or digitalis, the nervous system by the use of strychnine, and increase the elimination of toxins by the use of cold baths, which will have at the same time a calming influence.

Dr. Frémont, of Vichy, has been at work during the last year on a treatment of hypopepsia by the use of animal gastric juice. He uses the gastric juice of the dog, and recent results are very favorable to this treatment. Dr. Lannois speaks of a man who suffered from almost complete apepsia. Two examinations of the gastric juice were made, and hydrochloric acid was found. Only 3.60 cubic centimeters was secreted in twenty-four hours. Various kinds of treatment were tried, but without result. The patient was sent to Dr. Frémont, who gave him 500 grammes of gastric juice daily. A complete recovery was obtained in six months.

Dr. Barth described a similar case in a young woman who was in her second month of gestation. Gastric juice prepared by Dr. Frémont was administered in doses of sixty grammes thrice daily. Three months afterwards the condition of the patient was excellent, and the child was born at the end of the ninth month.

THE TREATMENT OF TUBERCULOSIS.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: Noting the excellent articles in the GAZETTE for January concerning the treatment of tubercular diseases, I am constrained to say something partly in dissent and partly in commendation. I certainly cannot agree

with the medical nihilism as regards specific medication in this disease advocated by one of the writers. While agreeing with them that proper climate and environments are more potent than any medication, certainly specific medication does help when properly given (you never saw a man throw away his cork leg because it did not act as well as the other). But if a physician is going to give it as many give advice about going to health resorts, without any regard to indications and contraindications, and seemingly without any knowledge whatever about when to give and how to give and when to stop—but going ahead blindly, giving them simply because some one has said they are specific—then I most heartily agree with Dr. Holland and Dr. Anderson that they had best let their patients have the chance for life which pure air and nutritious foods will give them.

Many physicians give the specific medication right ahead regardless of symptoms arising in the course of the treatment which clearly calls for its disuse. As Dr. Flick says, it is not enough to know that a certain drug is used in the treatment of tuberculosis, but we should also know when and how to use it, and we should certainly never lose sight of the necessity for adjuvants—*i. e.*, tonics (strychnine, etc.), stomachics, digestants, etc.—and use them whenever indicated.

And as Dr. Schauffler says concerning the use of creosote, I should certainly give specific medication as long as it was accomplishing what it was given for. I would just as certainly drop it as soon as any sign of stomach irritability appeared, or any other contraindication. For a physician to calmly and carelessly go ahead giving a remedy that is plainly not called for because some other physician has used it successfully is to say the least a very poor recommendation to the profession and should be condemned, as should also the practice many physicians have of sending patients to health resorts without any investigations concerning them, but merely on the recommendation of some other physician, and so sending them to altitudes and climates totally unsuited to their individual needs—often advising a patient to go to Boerne who should have gone to Colorado, or *vice versa*.

I wish to heartily commend what Dr. Schauffler says in the following sentence concerning the health resort practitioner: "He must under no circumstances undermine his patient's confidence in his family adviser by too radical a change in his treatment." Should you do so you will in many instances find that you have to some degree destroyed his confidence in the whole profession and in all medicines.

Now as to the remedies at present used for specific medication. The more prominent are, I believe, iodine in some form, creosote, serums, and the essential oils.

Almost all writers concede that iodine and creosote do act beneficially, but give trouble on account of their irritant action on the stomach. One may avoid this in giving iodine by using europhen in oil as an inunction, as Dr. Flick suggests, or by employing Dr. Chas. W. Ingraham's bromine iodine solution hypodermically. Both act well in many cases, but one must not forget to watch for symptoms calling for their disuse and drop them at the first sign of iodism.

As to the creosote, for the past year I have only been using guaiacol carbonate, and have so far never found any symptom of stomach trouble from it. (The plain beechwood creosote gave me so much trouble with stomachs that I dropped it.)

As to adjuvant treatment, I place good nourishing food and fresh air at the head of the list. Cod-liver oil I give as a concentrated food; the moment I find it disagreeing with my patients I stop it, as I would stop any other food that did not agree with them.

Of medicines, strychnine is often indicated and given, and so is digitalis whenever the circulation demands it; bitter tonics and iron preparations and the hypophosphites at times; cough remedies as sparingly as I can.

I will say in conclusion that when sent to the proper climate early and there given the right treatment many cases do recover. And when the home physician learns this and quits holding his patients until they are past all hope the statistics of tuberculosis will show a marked improvement.

As an addendum let me say in regard to the serums that while as yet I have had no personal experience with them, still I am sure they must be taken into consideration in the future successful treatment of the disease. Dr. Von Ruck, of Asheville, has been using his watery extract of the tubercle bacilli, and his figures compare very favorably with others; and unless we are prepared to assail his diagnoses we must concede a prominent place to his treatment in the therapeutics of tuberculosis.

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To the notes below and on the following pages, also in future issues, we respectfully direct your attention.

Very truly yours,

THE BUSINESS MANAGER,
Box 484, Detroit, Mich.

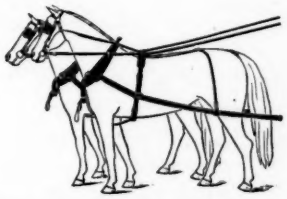
AT this season of the year, about the most prevalent disease is rheumatism, which has been treated in the past with indifferent success, usually by loading the system with salicylates. The profession, however, are following the lead of European specialists, who are treating this and kindred complaints with Effervescent Saline Laxatives.

Many of the profession are using Abbey's Effervescent Salt, an English preparation now being introduced into the United States by the Abbey Effervescent Salt Co., 9–15 Murray Street, New York City, with marked success.

THE day is happily past when the man who lives in the country thinks that a jolt-wagon is good enough for his riding and driving. He now requires, when he goes out on business or pleasure, as good a rig as you will find in the cities, and this is right and commendable, for if any one on earth

deserves the good things of life it is the farmer who has worked so hard to advance the material interests of the country. But in buying a carriage or buggy, it is not necessary to go in debt or to pay the fancy prices that have too often been asked in the past. By buying on a strictly cash basis and by dealing direct with a reliable manufacturer, the farmer can now secure a really first-class piece of work for much less than he formerly paid for an inferior vehicle.

This change has been very largely brought about by the Elkhart Carriage and Harness Manufacturing Co., of Elkhart, Ind., which for twenty-seven years has been manufacturing high-grade vehicles and harness and selling direct to users. Their factory, one of the most extensive in the country, has every equipment for turning out fine work at the least cost, but even a great saving is effected by their methods of selling direct. They save all expense of putting men on the road to sell their goods. They save all the expenses and profits of the dealer, agent, and middleman. The purchaser gets the goods at manufacturer's wholesale prices without anything added for bad debts or middlemen's profits. In most cases this saving amounts to thirty five per cent or more.



Another extremely popular feature of this company's methods of doing business is the fact that purchasers run no risk in ordering the goods from a distance, as they ship with the privilege of examining before you pay the bill. If the shipment is not satisfactory in every way the company orders the goods back and pays the freight charges both ways.

The accompanying illustrations will give the reader but a faint idea of the beauty of the 178 styles of vehicles and 68 styles of harness the Elkhart company makes. A better idea can be obtained from the large illustrated catalogue which they will send free to all inquirers. Do not fail to send for it.

CHEMICAL ANALYSIS VS. CLINICAL EXPERIENCE.—The publication of several works on the mineral springs of the United States during the past few years would seem to show that our medical men are beginning to realize that this country equals, if it does not surpass, Europe in the possession of mineral waters of positive curative properties. Most of our prominent mineral waters have been submitted to careful analysis, thus affording

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Samuel O. L. Potter, A.M., M.D., M.R.C.P., *London, Professor of the Principles and Practice of Medicine in the College of Physicians and Surgeons, San Francisco,* a recognized authority wherever medical science is known, in his handbook of Pharmacy, Materia Medica and Therapeutics, under head of **ALBUMINURIA**, page 600, 7th edition, **in the citation of remedies,** says: **BUFFALO LITHIA WATER of Virginia, is highly recommended."**

Under head of **CHRONIC BRIGHT'S DISEASE**, page 601, same edition, **in the citation of remedies,** he says: **"Mineral Waters, especially the BUFFALO LITHIA WATER of Virginia, which has many advocates."**

Dr. Alfred L. Loomis, *late Professor of Pathology and Practical Medicine in the Medical Department of the University of New York,* wrote: "For the past four years I have used **Buffalo Lithia Water** in the treatment of **Chronic Bright's Disease of the Kidneys,** occurring in **Gouty and Rheumatic subjects with marked benefit."**

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the physician some clue as to their therapeutic possibilities. We say "clue" advisedly, for, after all, it is the results of actual clinical experience and not the chemical composition upon which we must chiefly rely in estimating the value of any remedial agent. A mineral water is "nature's brew," and can never be successfully imitated by the chemical investigator, no matter how thorough and accurate his analysis may be. Science must here yield to nature. While the chemist is able to extract certain constituents he is unable to determine their exact combination in the water, and there are probably still other elements which elude his observation. This is not surprising when it is considered that it is but recently that certain elements have been discovered in the air which previously had not even been suspected. All this serves to explain why the exact mode of action of mineral waters is still a mystery, and why in their use we must be guided by reliable empirical observations rather than by chemical analysis. Many of our mineral springs were resorted to by suffering humanity long before any analysis had been made. The famous Buffalo Lithia Spring in Virginia is a familiar example. Years ago its extraordinary curative power in the treatment of rheumatism and gout was discovered by persons living in the vicinity. Medical men tested and confirmed its merits; its fame spread beyond the borders of the State, and nowadays it is esteemed by physicians in all sections of this country. Of course, the very accurate analysis which has been made to some extent explains its remarkable effect as a solvent of uratic and phosphatic deposits in the body, and its value in the treatment of rheumatic and gouty affections, renal calculi, and diseases of the kidney and bladder. But after all, it is chiefly the experience of competent clinical observers to which the Buffalo Lithia water owes its high position. Other instances might be cited, but this will suffice to prove our contention that a mineral water must not be considered from the chemical point of view, but mainly from a therapeutic standpoint.—*International Journal of Surgery,* February, 1900.

TREATMENT OF RHEUMATISM.—Dr. A. F. Schellschmidt (*New Albany Medical Herald,* February, 1900) states that he has had very different results from the administration of the salicylates, as a rule; his cases dragging along, week after week, without appreciable benefit from them. Since last fall he began a systematic exhibition of aspirin in acute rheumatism, and the results obtained have been exceptionally favorable. He gives the drug in doses ranging from 10 to 20 grains, prescribing it in powders, and directing the